

RAECO

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Industrial Hygiene and Safety Instrumentation

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Particulate Monitoring



Gas Detection and Monitoring



First Responder Safety



IAQ and Ventilation Testing



Sound Level and Noise Monitoring



Thermal and Optical Testing



Air Monitoring



Gas Analysis



Emissions Monitoring



Bios



"Gasmet"

Honeywell



SIEMENS



INDUSTRIAL HYGIENE — PORTABLES

V 04.2015

RAECO

511

Products in this catalog are available to rent anywhere in the US. Due to representative agreements with our manufacturer partners, not all products are available for sale in all areas and markets.

Delivery and training available only in Illinois, Indiana, Wisconsin, Kentucky, and Eastern Iowa.

Prices are current at publication, and are subject to change without notice.

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Portable Instruments
Industrial Hygiene

Portable Instruments
Safety

Fixed Instruments
Gas Detection/Monitoring

Fixed Instruments
Analytics

Flow

RAECO Rents

Services to Support Our Customers

Online Training

Having trouble figuring out how to get data from your Quest Technologies sound level and noise monitoring devices to your PC? The answers are as close as our Online Training Center.

In just five minutes, you'll get a step-by-step tutorial on how to load data analysis software on your PC, connect your monitoring equipment to your PC, transfer the data, and view it in the manufacturer's software.

Best yet, they're all available for FREE. Just visit RAECO.com and click on the [Training Center](#) link in the toolbar.



Advanced Function Aerosol Particulate Monitors



Features

- DustTrak II measures aerosol particulate mass
- DustTrak DRX measures particulate mass and size fraction at the same time! PM1, PM2.5, Respirable, PM10, and TPM
- Great for spot checks or long-term unattended sampling

TSI's DustTrak II and DRX handheld and desktop aerosol monitors are battery-operated, datalogging, light-scattering laser photometers that give you real-time aerosol mass readings of dust, smoke, fumes, and mists. They're suitable for use in clean office settings, harsh industrial workplaces, construction and environmental sites, and other outdoor applications.

DustTraks use a sheath air systems that isolates the aerosol in the optics chamber, and keep the optics clean for improved reliability and low maintenance.

The graphical color touchscreen interface puts everything at your fingertips. The display shows real-time mass concentration, graphs, and statistics, plus instrument pump, laser and flow status, and more.

You'll use the touchscreen to perform quick walk-through surveys or program the unit's advanced logging modes for long-term sample studies. You'll be able to program the start time, total sampling time, logging intervals, alarm setpoints, and other parameters, or set up the DustTrak for continuous operation.

DustTrak DRX — an industry first!

TSI's DRX model laser photometers simultaneously measure mass and size fraction — **something no other monitor on today's market can do.**

Basic photometers can be used at high mass concentrations. But, they don't give any size information unless they're used with size-selective inlet conditioners. And, they can significantly underestimate large particle mass concentrations.

Optical particle counters can provide size and count information. But, they don't provide mass concentration data, and can't be used in high mass concentration environments.

The DustTrak DRX improves on the performance of basic photometers or optical particle counters, because it delivers the mass concentration of a photometer with the size resolution of an OPC.

DustTrak DRX is a continuous real-time 90° light-scattering laser photometer that simultaneously measures size-segregated mass fraction concentrations corresponding to PM1, PM2.5, respirable, PM10, and total PM size fractions. It can combine both particle cloud (total area of scattered light) and single particle detection to achieve mass fraction measurements.

DustTrak II — Easy update to the DustTrak 8520

DustTrak II monitors are continuous real-time, single-channel 90° light-scattering laser photometers for determining the mass concentration of aerosols. A built-in pump allows the use of a variety of size-selective inlet conditioners to measure aerosol concentrations to PM10, PM2.5, PM1, or respirable size fractions.

Portable models feature single-point datalogging, making them ideal for industrial hygiene walkthroughs and IAQ investigations. The desktop models add user-adjustable alarm setpoints for instantaneous or 15-minute STEL readings.

USB, Ethernet, and wireless communications (depending on model) make it easy to connect to your PC and use TrakPro data analysis software for programming, and data acquisition.

Learn more about the DustTrak II and DRX at
www.raeco.com/get/DustTrak.php



3M Quest EVM-7 Multiparameter Environmental Monitor



- Measures and logs particulate mass concentration, toxic gases, carbon dioxide (CO2), relative humidity, temperature, and air velocity
- Dial-in rotary impactor system for quick particulate selection (PM2.5, PM4, PM10, or TSP)
- Built-in sampling pump collects particulates, while the light-scattering photometer mass concentration engine provides real-time measurement
- Photoionization detector measures volatile organic compounds (ppm)

Models for Sale

Description	Catalog No	Price
Basic Environmental Monitor	EVM-7	\$7531.00
Environmental Monitor + CO Sensor	EVM-7/CO	7758.00

Ships with base model with PID sensor, CO2 sensor, CO sensor, two 37mm gravimetric filter cassettes, 12 VDC universal power supply, USB cable, impactor grease, PID cleaning kit, 10-pack of pump protection filters, dust zero calibration filter assembly, toxic calibration adapter, user manual, and carrying case.





DUSTTRAK™ DRX for Mass Concentration and Total PM Size

- Continuous real-time 90° light-scattering laser photometer
- Simultaneously measures size-segregated mass fraction concentrations (PM1, PM2.5, respirable, PM10, and Total PM size fractions)
- Combines both particle cloud (total area) and single particle detection to achieve mass fraction measurements
- 5.7" (Desktop) or 3.5" (Handheld) VGA color touchscreen interface



DUSTTRAK™ II for Mass Concentration of Aerosols

- Replaces retired TSI DustTrak model 8520
- Real-time single-channel 90° light-scattering laser photometer
- Measures mass concentrations of aerosols to PM1, PM2.5, PM10, or respirable size fractions
- 5.7" (Desktop) or 3.5" (Handheld) VGA color touchscreen interface



DUSTTRAK™ 8535 Weatherproof Enclosure

- Environmental enclosure provides security and protection
- Comes with sampling inlet for use in windy conditions
- Water trap prevents precipitation from entering the instrument
- Extended-life batteries allow continuous, 24-hour operation
- Wireless radio modems and dipole antenna for field communications



Models and Accessories for Sale

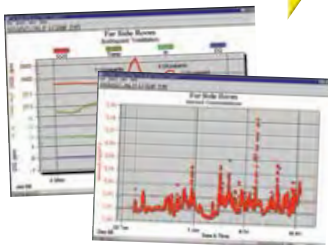
Description	Catalog No	Price
DustTrak II Desktop Particulate Monitor (Replaces retired 8520)	8530	\$5865.00
DustTrak II Handheld Particulate Monitor	8532	5375.00
DustTrak DRX Desktop Particulate Monitor	8533	10500.00
DustTrak DRX Handheld Particulate Monitor	8534	9130.00
DustTrak II and DustTrak DRX Environmental Enclosure	8535	1515.00
DustTrak Enclosure Internal Battery System (Order Separately)	801807	595.00
DustTrak Enclosure Heat Shield (Order Separately)	801810	150.00

DustTrak DRX includes analog outputs, rechargeable 6600 mAh Li-Ion battery, switching power supply with universal line cords, TrakPro data analysis software, zero filter, USB computer cables, analog/alarm output connector, two inlet caps, 37mm cassette with mesh filter, 10mm nylon Dorr-Oliver cyclone, impactor kit, two impactor plates, impactor oil, sample extension tube, four sheath air HEPA filters, filter removal tool, carrying case, operation service manual, calibration certificate, and two-year warranty.

DustTrak II ships with analog outputs, rechargeable 6600 mAh Li-Ion battery, switching power supply with universal line cords, TrakPro data analysis software, zero filter, USB computer cables, analog/alarm output connector, two inlet caps, 37mm cassette with mesh filter, 10mm nylon Dorr-Oliver cyclone, impactor kit, two impactor plates, impactor oil, sample extension tube, four sheath air HEPA filters, filter removal tool, carrying case, operation service manual, calibration certificate, and two-year warranty.

8535 enclosure includes weatherproof case with survey tripod mount, 360° sampling inlet with extended rain cap, water trap bottle, internal equipment bracket with Velcro straps, dust caps, tubing, plug, O-rings, and weatherproof power adapter.

**Buy
Now!**



All TSI products compatible with TRAKPRO™ data analysis software include the CD free! The latest TRAKPRO™ version is also available for download from www.TSI.com



Using DustTraks for Perimeter Monitoring?

RAECO can help! Just call!

Let us know what your application needs are, and we'll help configure and build you a kit for perimeter dust monitoring that include the monitor, weatherproof case, battery power, a cellular modem with datalogging, weather station, and Internet cloud-based access to your results. Need to monitor area sound levels or VOCs? We can add that, too!

Portable Aerosol and Airborne Particle Counters



SIDEPAK™ AM510 Intrinsically Safe Personal Aerosol Monitor

- Displays and logs real-time aerosol concentrations and 8-hour TWAs
- Built-in impactors for none, 1.0, 2.5, or 10-pM cutoff
- Built-in pump for use with variety of inlet conditioners
- Smart battery system with NiMH or AA battery pack
- Locking keypad prevents tampering or accidental changes

Ships with soft single-unit carrying case, 115/230 VAC power supply/charger, line power cord, impactor kit, cyclone kit, screwdriver, TrakPRO™ data analysis software CD, USB cable, zero filter, sample tube, user guide, battery maintenance card, and quick reference card.

RAECO Rents
**Rent by the day,
week, or month.**
See page 578.

**Buy
Now!**

Models and Accessories for Sale

Description	Catalog No	Price
SidePak AM510 Personal Aerosol Monitor: One-Unit Kit		
Kit with 6-Cell AA Battery Pack	AM510-1A11	\$4135.00
CSA/ATEX Approved Kit, 1650 mAh NiMH Battery Pack	AM510-1C11	4240.00
Kit with 2700 mAh NiMH Battery Pack	AM510-1E11	4340.00
AM510 Replacement 10mm Nylon Dorr-Oliver Cyclone Kit	801701	105.00
AM510 Replacement Impactor Kit (1.0, 2.5, 10 pM)	801702	120.00

Due to contract restrictions, TSI SidePak AM510 aerosol monitors are only available for sale within our Midwest regional territory, but can be rented anywhere within the US.



**Buy
Now!**

AEROtrak™ Handheld Optical Particle Counters

- Three channel model (left) logs up to 1,500 samples, 0.3 to 25µm range and user-selectable middle channel for 0.5, 1.0, 2.0, or 2.5µm
- Six channel model (right) logs up to 10,000 samples, size range from 0.3µm to 10µm, factory-calibrated at 0.3, 0.5, 1, 3, 5, and 10µm, and includes an internal audible alarm
- Color touchscreen operation and straightforward control with Windows CE operating system and TSI TrakPro™ Lite data download software

Models and Accessories for Sale

Description	Catalog No	Price
Three-Channel Handheld Airborne Particle Counter, Flow Rate 0.1 CFM (2.83 LPM)		
0.3/5.0 µm Fixed, 0.5/1.0/2.0/2.5 µm Selectable Middle Channel	9303-01	\$2195.00
Six-Channel Handheld Airborne Particle Counter, Flow Rate 0.1 CFM (2.83 LPM)		
Six Fixed Channels: 0.3/0.5/0.7/1.0/2.0/5.0 µm	9306-03	3945.00
Six Fixed Channels: 0.3/0.5/1.0/3.0/5.0/10 µm	9306-04	3945.00
Six Selectable Channels: 0.3 to 10 µm, (Replaced retired 8220) Calibrated at 0.3, 0.5, 1.0, 3.0, 5.0, and 10.0 µm	9306-V2	3995.00

Units ship with power supply, rechargeable Lithium Ion battery, isokinetic inlet, purge filter, USB cable, and TrakPro Lite download software. 9306 units also ship with stylus. Call for optional accessories: Spare batteries, sample tubing, temperature/RH probe, printer and paper, and carrying case.

Portable and personal dust monitors reduce employee exposure risks



A customer at a large welding operation saw visible smoke on the plant floor during operation, so they needed to address both potential hexavalent chrome and total respirable dust exposure. They decided to use the TSI DustTrak II for area monitoring, and employees started wearing AM510s for personal monitoring.

The TSI devices were used to characterize the environmental and breathing area particulate concentrations, and to evaluate strategies to control ventilation and reduce exposure. With data from the DustTrak II and AM510s, the customer was able to select the most effective and energy efficient solution for reducing employee exposures.

Later, IH sampling confirmed dramatic reductions in both chrome and respirable dust exposure. Plus, employees reported being more comfortable in their environment.

Particulate Concentration Monitors for Plant Safety



Buy Now!

P-TRAK® 8525 Ultrafine Particle Counter

- Counts ultrafine particles less than 1µm diameter
- Tracks unwanted particles to their source in real time
- Logs data up to 1000 hours at minute intervals, holds 141 tests at once; Download data to a PC for record-keeping and analysis
- Ideal for checking filters and finding gasket leaks



Models and Accessories for Sale

Description	Catalog No	Price
P-Trak Ultrafine Particle Counter, 20-1000 nm	8525	\$5805.00
Replacement Alcohol Wicks with Screens (10-Pack)	8023	135.00
Replacement 30 ml Alcohol Bottles (Case of 16)	8016	115.00
Replacement Hard-Sided Carrying Case	801613	225.00

P-TRAK® 8525 kit includes sample probe, sample tube, shoulder strap, inlet screen, two spare wicks, battery holder, six AA batteries, alcohol fill capsule and storage cap, alcohol cartridge, four 30ml bottles isopropyl alcohol, two zero filters, carrying case, TrakPro software, USB cable, DB9/DB25 serial adapter, and manual.

Due to contract restrictions, the TSI P-Trak 8525 is only available for sale within our Midwest regional territory (though parts are available for unrestricted sale). The P-Trak can be rented anywhere within the US.



Buy Now!

AERO TRAK™ Portable Airborne Particle Counters

- Six-channel benchtop particle counters with 1 CFM or 50 LPM flow rates, available in 0.3 or 0.5 to 25 µm ranges
- Store up to 10,000 sample records and download by USB or Ethernet, or print directly from built-in thermal printer
- 5.7" Windows CE-based color touchscreen TSI's TrakPro™ Lite data download software

Need a field-mount particle counter? Call RAECO.

Units ship with power cord, battery, stainless steel isokinetic probe, tripod 10' sampling tube, purge filter, printer paper, USB cable, TrakPro Lite data download software. Call for pricing on other accessories.

Models and Accessories for Sale

Description	Catalog No	Price
Six-Channel Particle Counter (0.3/0.5/1.0/3.0/5.0/10 µm), 1 CFM	9310-02	\$8995.00
Six-Channel Particle Counter (0.5/0.7/1.0/3.0/5.0/10 µm), 1 CFM	9510-02	8770.00
Six-Channel Particle Counter (0.3/0.5/1.0/3.0/5.0/10 µm), 50 LPM	9350-02	9890.00
Six-Channel Particle Counter (0.5/0.7/1.0/3.0/5.0/10 µm), 50 LPM	9550-02	9585.00



Buy Now!

AERO TRAK™ 9000 Nanoparticle Aerosol Monitor

- Indicates lung surface area of nanoparticles in the TB and A regions
- Integrated pump for active sampling; 1 µm cyclone at 2.5 lpm
- Statistics for 8-hour TWA, min/max/average surface area concentration with alarm setpoint for workplace exposure monitoring
- Graphs real-time data or logged sample data up to one million points
- Stainless steel case for use in clean rooms

Due to contract restrictions, the TSI AeroTrak 9000 is only available for sale within our Midwest regional territory (though parts are available for unrestricted sale).

Models and Accessories for Sale

Description	Catalog No	Price
AeroTrak 9000 Nanoparticle Aerosol Monitor	9000	CALL
6600 mAh Lithium Ion Battery	1208057	375.00
Two-Bay Battery Charger for AeroTrak 9000/8240/8260	2610114	730.00
Replacement Filter Maintenance Kit	1031599	445.00

Kit includes carrying case, 6600 mAh rechargeable Lithium ion battery, 1µm cyclone, filter maintenance kit (one each HEPA, carbon, and conductive filters), USB cable, analog/alarm output cable, conductive sampling tube, power cord, 9/16" cyclone wrench, dual-ended screwdriver, TrakPro™ software CD, and user guide.

Portable Ventilation Test Instruments



VELOCICALC™ 9565 Multifunction Ventilation Meter

- Velocity range from 0 to 15,000 ft/min, measures velocity by thermal sensor, rotating vane, or Pitot tube
- Calculates air and heat flow, turbulence, wet bulb, dewpoint temperature; displays up to five measurements simultaneously
- Datalogging capacity of more than 26,500 samples and 100 test IDs
- Works with TSI TrakPro software for data download and analysis

Models and Accessories for Sale

Description	Catalog No	Price
VelociCalc™ ventilation meter, pressure, datalogging, 964 probe	9565	\$2240.00
VelociCalc ventilation meter, pressure, datalogging, 966 probe	9565-A	2410.00
VelociCalc ventilation meter, pressure, datalogging, no probes	9565-P	1360.00
VelociCalc ventilation meter, datalogging, no probes	9565-X	1145.00
IAQ probe: CO2, temperature, humidity, CO	982	2040.00
Air velocity probe: Straight, velocity, temperature	960	695.00
Air velocity probe: Straight, velocity, temperature, humidity	964	910.00
Surface temperature probe	792	150.00
Volatile organic compound (VOC) probe, ppm range	985	2390.00
IAQ, VOC (ppb), CO2, temperature and humidity probe	986	3740.00
Rotating vane probe, 100mm, velocity, temperature	995	585.00

Kits includes meter, specified probe, hard carrying case, four AA Alkaline batteries, USB cable, LogDat2 and TrakPro software, user manual, calibration certificate. 9565, 9565-A, and 9565-P include one 8' rubber tube and static pressure tip.

VELOCICALC™ 9500 Series Ventilation Meters

- For HVAC system performance, commissioning, and plant maintenance

Model	9515	9535	9545
Velocity (ft/min)	0-4,000	0-6,000	0-6,000
Temperature (°F)	0°-200°	0°-200°	14°-140°
Relative humidity			0-95%
Wet bulb, dewpoint			•
Variable time constant		•	•
Datalogging		12700+ samples, 100 IDs	

Models and Accessories for Sale

Description	Catalog No	Price
Air velocity and temperature meter	9515	\$640.00
Datalogging meter, straight probe, velocity, temperature	9535	990.00
Datalogging meter, articulated probe, velocity, temperature	9535-A	1150.00
Datalogging meter, straight probe, velocity, temp., humidity	9545	1325.00
Datalogging meter, articulated probe, velocity, temp., humidity	9545-A	1485.00

9515 ships with instrument, hard carrying case, four Alkaline batteries, operation and service manual, and calibration certificate.

TSI 9535 and 9545 include instrument, hard carrying case, four Alkaline batteries, USB cable, LogDat2 software, operation and service manual, and calibration certificate.

VELOCICALC™ 5725 Rotating Vane Anemometer

- Velocity range 50-6,000 feet per minute
- Reversible 4" head to read supply and exhaust flows
- Input duct shape, size, and area for volumetric flow rate calculation
- Sampling function records multiple point measurements, logs 12,700+ samples with time and date stamp
- Automatic averaging of air velocity; Displays velocity and temperature

Models and Accessories for Sale

Description	Catalog No	Price
Rotating vane anemometer, datalogging	5725	\$835.00
Aircone kit, 11.2" x 9.2" rectangular, 7.1" round	801749	240.00
36" telescoping rod for rotating vane probe	801748	150.00

Kit includes instrument with 4" (100mm) vane, carrying case Alkaline batteries, operation and service manual, USB cable, LogDat2 downloading software and calibration certificate.



Buy Now!



Buy Now!



Buy Now!



**Buy
Now!**

EBT731 Electronic Balancing Tool

- Measurement range: 25 to 2500 CFM
- Pre-assembled hood frames save on-site setup time
- Detachable manometer for use in other applications
- Use with Pitot, air flow, temperature, or relative humidity probes
- Datalogging and download software for easy report generation
- Add an air capture hood stand for one-person operation, use an Android tablet and LogDat mobile to view data from across the room



Models and Accessories for Sale

Description	Catalog No	Price
Electronic balancing tool with 2' x 2' hood and frame kit	EBT731	\$3165.00
18" air flow probe (25-5000 ft/min)	800187	385.00
Temperature probe (-40° to 250°F)	800220	360.00
Velocity matrix, telescoping handle (25-2500 ft/min)	801090	390.00
Air capture hood stand	CH-STAND	485.00
Optional Hood Kits		
2' x 4' hood kit	801201	350.00
1' x 4' hood kit	801200	350.00
3' x 3' hood kit	801203	350.00
8" x 22" Class II biosafety cabinet hood kit	801204	470.00
10" x 22" Class II biosafety cabinet hood kit	801205	470.00

Ships with base, 2' x 2' hood, frame, and base, manometer, wheeled carrying case, 18" Pitot probe, two static pressure probes, temperature/humidity probe, two 8' Neoprene tubes, LogDat1 download software, serial interface cable, neck strap, four AA rechargeable NiMH batteries, charger, NIST calibration certificate, and user manual.



Capture Hood Stand Makes Ventilation Testing Easier!

- Reach ceiling diffusers and grilles up to 15 feet (with hood attached)
- Eliminates ladder use and movement — saves time and increases safety
- Get more measurements in less time — just roll the balometer to the next location
- Stand uses two wheels and casters for easy movement, with two extension poles for height adjustment
- Comes with soft-sided case and shoulder strap for easy portability
- Detach the digital manometer and connect it to the hood with two 8' sections of tubing to view results without climbing
- View your test data on a smart phone or tablet using TSI LogDat Mobile software (available from Google Play store) and compatible device (Android smart phone OS 2.3.3 or newer, Nexus 7, Nexus 10, or Motorola Xoom tablets)

Order the CH-STAND with your EBT731 and download TSI LogDat Mobile from Google Play.



**Buy
Now!**

TSI Alnor 6200 LoFlo Balometer

- Measurement range 10 to 500 CFM
- Accuracy to $\pm 3\% + 5$ CFM
- Analog display for air trends plus digital readings
- Multiple kits and hood sizes available: 16" square x 8" tall, 2' square x 8" tall, 16" square x 18" tall, or 26" square x 18" tall
- Ultra light weight for easy one-person operation
- Operates on four AA batteries, minimum 10 hours of continuous use



Models and Accessories for Sale

Description	Catalog No	Price
LoFlo Balometer with 16" x 16" x 8" tall hood and frame kit	6200	\$1605.00
LoFlo Balometer with 2' x 2' x 8" tall hood and frame kit	6200D	1595.00
Hood Kits		
16" x 16" x 18" tall hood and frame kit	634620085	245.00
26" x 26" x 18" tall hood and frame kit	634620130	245.00

Includes base, hood, batteries, carrying case, NIST calibration certificate, user manual, and two-year limited warranty.

Portable Ventilation Test Instruments

PAN200 Positive and Negative Duct Accreditation System (PANDA)



- Find and fix duct leaks to save energy
- High flow fan for testing large duct sections
- Pressurizes duct quickly, so testing can begin in minutes
- Includes TSI VelociCalc 9565-P ventilation meter and DP-Calc 5815 micromanometer
- Automatically calculate leakage rate in real time
- Monitor barometric pressure and temperature to automatically correct to Standard Temperature and Pressure (STP)
- Log data and download for easy report generation and documentation

Includes base unit, TSI VelociCalc 9565-P and DP-Calc 5815 plus low flow nozzle, primary duct adapter, .13-foot plastic flexible duct, 20" and 16-foot silicone tubes, smoke cap holder assembly, smoke pellets, K-type thermocouple probe, instrument adapter, operation and user manual.

Pass/Fail Reporting for Standards

- SMACNA HVAC air duct leakage test
- EN12237, EN1507 ventilation for buildings
- EUROVENT 2/2 standards

Buy Now!

Models and Accessories for Sale

Description	Catalog No	Price
110V Powered duct leak tester, TSI 9565-P and 5815	PAN231-110	\$9780.00
110V Powered duct leak tester, no instruments	PAN315-110	8750.00
Smoke pellets, tube of 6	AFL9004167	20.00

HM675 and HM685 Handheld Digital Hydronic Manometers



- Test and balance heating and cooling systems, check pump performance, set balancing valves
- Measure and display high side, low side, and differential pressure simultaneously from 0 to 300 PSI
- Inputs from two temperature probes
- Calculates flow using valve manufacturer's Cv factor, up to 100, Calculates heat flow, impeller diameter, and brake power
- HM685 stores up to 4000 data points for download using TSI CompuDat software and USB cable

Models and Accessories for Sale

Description	Catalog No	Price
Hydronic manometer	HM675	\$3105.00
Datalogging hydronic manometer with download kit	HM685	3795.00
Accessories	Accessory kit (34 fittings + 2 readout probes)	HMFIT 220.00
	4" HM temperature probe	801290 235.00
	6" HM temperature probe	801291 265.00
	6' temperature probe extension cable	801293 95.00

Ships with instrument and standard fittings, two 6' hoses, two ITT Bell & Gossett readout probes, two P/T gauge adapter probes, four AA NiMH batteries, internal battery charger, NIST traceable calibration certificate, hard carrying case, two-year limited warranty. **HM685 also includes** downloading software, USB computer cable, and temperature probe.

Buy Now!

Testo 550 Refrigeration System Analyzer



- Real-time superheat and subcooling calculations from 31 pre-configured refrigerant profiles
- Two NTC temperature probe inputs
- Accurate to 580 PSI, max pressures to 870 PSI
- Performs both timed pressure drop tests and standing pressure tests for commissioning systems

Models and Accessories for Sale

Description	Catalog No	Price
Basic refrigerant system analyzer kit, one probe	0563 5505	\$299.00
Deluxe refrigerant system analyzer kit, two probes, case	0563 5506	399.00

Ships with instrument, NTC temperature probe, batteries, calibration certificate. Deluxe kit includes second probe plus a hard-sided carrying case.

Buy Now!



Indoor Air Quality Measurement Instruments



Buy Now!

IAQ-CALC™ 7500 Series Indoor Air Quality Meters

- All models feature low-drift NDIR CO₂ sensor for accurate readings
- 7515/7535 units display CO₂; 7525/7545 display up to three parameters
- 7525 and 7545 also measure temperature and relative humidity, calculate percent outside air from CO₂ or temperature, and directly calculate dewpoint and wet bulb temperature
- Datalogging models include statistics function for average, maximum and minimum values, and number of recorded samples

Ships with instrument, four AA Alkaline batteries, hard carrying case, manual, NIST calibration certificate. Datalogging models include LogDat software on CD and USB cable.

Models and Accessories for Sale

Description	Catalog No	Price
IAQ-Calc basic meter, CO ₂ measurement	7515	\$620.00
IAQ-Calc meter, CO ₂ , temperature, humidity, datalogging	7525	1935.00
IAQ-Calc meter, CO ₂ , CO, temperature, humidity, datalogging	7545	2215.00

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Rent by the day, week, or month.
See page 580.

Need calibration kits? Call RAECO.



Buy Now!

Q-TRAK™ 7575 Indoor Air Quality Monitor

- Measures CO₂, temperature, humidity, and CO, and displays up to five measurements simultaneously
- Calculates percent outside air from CO₂ or temperature and automatically calculates dewpoint, and wet bulb temperature
- Store up to 38.9 days of data collected at one-minute log intervals

Q-TRAK™ 7575 ships with 982 IAQ probe, Alkaline batteries, USB cable, TrakPro software, AC adapter, carrying case, user manual, calibration certificate, and two-year warranty.

Models and Accessories for Sale

Description	Catalog No	Price
Q-Trak™ 7575 IAQ meter with IAQ probe 982	7575	\$3100.00
IAQ probe: CO ₂ , temperature, humidity, CO (included)	982	2040.00
Air velocity probe: Straight, velocity, temperature	960	695.00
Air velocity probe: Straight, velocity, temperature, humidity	964	910.00
Surface temperature probe	792	150.00
Volatile organic compound (VOC) probe, ppm range	985	2390.00
IAQ, VOC (ppb), CO ₂ , temperature and humidity probe	986	3740.00
Rotating vane probe, 100mm, velocity, temperature	995	585.00

RAECO Rents
Rent by the day, week, or month.
See page 580.

Due to contract restrictions, the TSI Q-Trak™ 7575 is only available for sale within our Midwest regional territory (though parts are available for unrestricted sale). The Q-Trak can be rented anywhere within the US.



Buy Now!

DP-CALC™ 5815 and 5825 Handheld Micromanometers

- Measures differential and static pressure from -15" to 15" H₂O
- Calculates and displays velocity when used with a pitot tube
- Variable time constant for fluctuating flows
- 8525 also calculates flow, logs data with time/date stamp, stores 12,700+ samples and 100 test IDs, and supports programmable K factor

Models and Accessories for Sale

Description	Catalog No	Price
Basic digital handheld micromanometer	5815	\$555.00
Digital handheld micromanometer, datalogging, velocity calc.	5825	855.00
Pitot Probes for 8525	18" Pitot probe, 5/16" diameter	634634001 165.00
	24" Pitot probe, 5/16" diameter	634634002 180.00
	36" Pitot probe, 5/16" diameter	634634003 210.00
	8" to 38" telescoping Pitot probe	634634004 310.00

Ships with instrument, hard carrying case, four Alkaline batteries, operation and service manual, and calibration certificate. 8525 also includes one 8" rubber tube, one static pressure tip, LogDat2 downloading software and USB cable. Pitot probe ordered separately.

520 **RAECO**

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Bensenville, IL 60106-3366Wisconsin Operating Office
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Rentals: 866-RENT-EHS
Fax: 815-464-8720

now part of 3M

Noise Dosimeters



**Buy
Now!**

Edge eg4 and eg5 Personal Noise Dosimeters

- Cable-free dosimeter that displays SPL, dose, Lavg, Leq, TWA, maximum, minimum, and peak levels, and run time — all in RUN mode
- Convenient, efficient, cable-free design eliminates the microphone cable and its potential to get in your way
- Two virtual dosimeters plus datalogging for measuring 70 to 140 dB
- Independent dosimeter thresholds (70 to 90 dB or none), exchange rates (3, 4, or 5 dB), and criterion levels (70 to 90 dB in 1 dB increments)
- Rechargeable battery provides more than 60 hours of run time
- Compatible with 3M Quest software for reporting, record-keeping, calibration management, exposure recalculation, and administrative/engineering controls assessment

Models and Accessories for Sale

Description	Catalog No	Price
Edge eg4 general service personal cord-free noise dosimeter		
Edge 4 noise dosimeter	eg4	\$1539.00
Edge 4, EdgeDock-1 docking station	eg4-D	2008.00
Edge 4, EdgeDock-1 docking station, AC-300 calibrator	eg4-D-AC3	2530.00
Five Edge 4s, EdgeDock-5 docking station, AC-300 calibrator	5eg4-D-AC3	8750.00
Edge eg5 intrinsically safe personal cord-free noise dosimeter		
Edge 5 noise dosimeter	eg5	1717.00
Edge 5, EdgeDock-1 docking station	eg5-D	2186.00
Edge 5, EdgeDock-1 docking station, AC-300 calibrator	eg5-D-AC3	2708.00

RAECO Rents
**Rent by the day,
week, or month.
See page 585.**

Single unit includes one dosimeter, two windscreens, 1/4" microphone, calibrator adapter, user manual and carrying case. EdgeDock-1 models include power supply and USB cable.

Five-pack includes five each: dosimeters with 1/4" microphones, eight windscreens, plus one each: EdgeDock-5 five-bay docking station with power supply, AC-300 calibrator and calibrator adapter, USB cable, and carrying case.



**Buy
Now!**

AcoustiCal AC-300 Sound Calibrator

- Produces 250 Hz or 1000 Hz at a sound pressure level of 114 dB
- Calibrates Class/Type 1 and Class/Type 2 sound level meters and noise dosimeters; Meets ANSI and IEC standards
- Screen displays Hz, dB, and battery life
- 1" coupler opening with snap-in adapters for smaller connections
- Replacement for retired Quest QC-10 and QC-20 calibrators

Models and Accessories for Sale

Description	Catalog No	Price
Sound calibrator, single output 114 dB at 1000 Hz	AC-300	\$522.00
Calibrator adapter for 0.25" diameter microphones	56-988	42.00
Calibrator adapter for 0.5" diameter microphones	56-990	42.00
A-63B preamp adapter for 1" diameter microphones	58-376	98.00

Due to contract restrictions, 3M Quest products are only available for sale within our Midwest regional territory. They can be rented anywhere within the US.

Includes calibrator, 9V battery, calibration certificate, and user manual. Order adapter separately, based on microphone size.



now part of 3M

Software for Analyzing Your Noise Dosimeter Results

Detection Management Software for reporting, record-keeping, calibration management, and more!

- Compatible with 3M Quest Edge and NoisePro noise dosimeters, SoundPro and Sound Examiner SE-400 sound level meters, EVM series environmental monitors, and QuesTemp heat stress monitors
- Imports legacy data from QuestSuite Pro software
- Display and manipulate data on your PC
- Download configuration files, parameter settings and clock
- Store calibration data and serial number
- Single user, 10-user, or unlimited licenses
- Call RAECO for pricing and latest version



NoisePro DL Type 2 Noise Dosimeters



- One or two virtual dosimeters in one
- Lavg/Leq, FastMax and SlowMax statistics; Displays time history, recalculated exposure data
- Alarms for Dosimeter #1 overall TWA value and any Dosimeter #1 time history interval Lavg/Leq
- Auto-run activators one-time, once or twice daily with weekday choice
- Minimum 40 hours time history capacity with all data saved
- Compatible with 3M Quest software

Single dosimeter kit includes dosimeter, Class 2 pendant microphone, windscreen, calibrator adapter, and storage case. Additional components available as specified by model.

Five-pack kit includes five each of the following: NoisePro DL dosimeters, Type 2 pendant microphones, windscreens, microphone cords, and clothing clips, plus one each of the following: AC-300 calibrator, IR to RS-232 PC interface cable, storage case.

Learn more about these products.

Check RAECO.com for specs, manuals, quick-start guides, application notes, how-to videos, and more.

Buy Now!

Models and Accessories for Sale

Description	Catalog No	Price
NoisePro DL noise dosimeter	NP-DL	\$1957.00
NoisePro DL with IR/RS-232 computer interface cable	NP-DL-CBL	2100.00
NoisePro DL, IR/RS-232 cable, AC-300 calibrator	NP-DL-AC3	2479.00
5-Pack Kit, IR/RS-232 cable, AC-300 calibrator	5NP-DL-AC3	10643.00
RS-232 serial to USB adapter	53-810	100.00

Due to contract restrictions, 3M Quest products are only available for sale within our Midwest regional territory. They can be rented anywhere within the US.

NoisePro DLX Type 2 Noise Dosimeters



- Up to four virtual dosimeters in one
- Time history statistics per dosimeter: Lavg/Leq, FastMax and SlowMax, FastMin, SlowMin, fast and slow ceiling counts, Lpeak; Turn off any statistic as needed
- Alarms for Dosimeter #1 overall TWA value and any Dosimeter #1 time history interval Lavg/Leq
- Stores data from up to five dosimeters in series; Download statistics, statistical distribution, time history, and recalculated exposure data
- Auto-run activators up to four one-time runs, once or twice daily
- Compatible with 3M Quest software

Buy Now!

Models and Accessories for Sale

Description	Catalog No	Price
NoisePro DLX noise dosimeter	NP-DLX	\$2353.00
NoisePro DLX with IR/RS-232 computer interface cable	NP-DLX-CBL	3738.00
NoisePro DLX, IR/RS-232 cable, AC-300 calibrator	NP-DLX-AC3	4117.00
5-Pack Kit, IR/RS-232 cable, AC-300 calibrator	5NP-DLX-AC3	12623.00
RS-232 serial to USB adapter	53-810	100.00

RAECO rents
Rent by the day, week, or month. See page 585.

Single meter kit includes dosimeter, Class 2 pendant microphone, windscreen, calibrator adapter, and storage case. Additional components available as specified by model.

Five-pack kit includes five each of the following: NoisePro DL dosimeters, Type 2 pendant microphones, windscreens, microphone cords, and clothing clips, plus one each of the following: AC-300 calibrator, IR to RS-232 PC interface cable, storage case.

NI-100 Personal Noise Indicator



- Alerts users to potentially dangers noise levels and helps identify areas where hearing protection needs to be worn
- Accurate to 3 dB
- LED flashes green when noise levels are below 85 dBA. Flashes red when noise levels are over 85 dBA, indication the need for hearing protection
- Rechargeable battery operates up to 200 hours between charges
- Auto power-off after 10 hours to save battery life

Order a 10-pack P/N: NI-100 Price: \$445.00

10-pack includes case of 10 indicators, user instructions.



Portable Sound Level Meters

SD-200 Sound Detector Integrating Sound Level Meter



**Buy
Now!**

- 45 to 130 dB dynamic range with 3 or 5 dB exchange rate
- LED alert levels: Flashing green at 80 to 85 dB, flashing yellow at 85 to 105 dB, flashing red at >105 dB
- Measures SPL, Min, Max, Leq, Lavg, runtime overload, and under range
- Bright display has 3/4" digits, 0.1 dB resolution, 0.5 second update rate
- Acoustic standards: ANSI S1.4 1983 (R2006), ANSI S1.43 1997 (R2007), IEC 61672-1 (2002) and IEC 61010-1 (2010)

Models and Accessories for Sale

Description	Catalog No	Price
Sound Detector Sound Level Meter	SD-200	\$369.00
0.5" Calibration Adapter for SD-200 and AcoustiCal	56-990	42.00

Kits include sound detector, Type 2 microphone, USB cable (for charging via PC), windscreen, user instruction manual.



**Buy
Now!**

Sound Examiner Type 1 and Type 2 Integrating Sound Level Meter

- 30 to 140 dBA overall range, 100 dBA total dynamic measurement range, 143 dBA max sampled peak level; Three selectable exchange rates: 3, 4, and 5 dBA
- Choice of Type 1 (precision) or Type 2 (general purpose) microphones
- A, C, and Z peak frequency weighing
- SPL, Lmax, Lmin, peak, Leq/Lavg, and elapsed time
- 2MB internal memory for logged data, logging intervals from 5 seconds to 60 minutes
- USB interface for charging and connecting to PC and Detection Management Software
- Acoustic standards: IEC 61672-1 (2002), ANSI S1.43-1997 (R2007)

Models and Accessories for Sale

Description	Catalog No	Price
Sound Examiner with Type/Class 2 Microphone	SE-402	\$1517.00
Sound Examiner, Type/Class 2 Microphone, AC-300 Calibrator	SE-402-AC3	2039.00
Sound Examiner with Type/Class 1 Microphone	SE-401	2532.00
Sound Examiner, Type/Class 1 Microphone, AC-300 Calibrator	SE-401-AC3	3054.00

Kits include meter, microphone, USB cable, USB power supply, wind screen, calibrator adapter, storage case, and user instruction manual. Calibrator included in kit if -AC3 is ordered.



**Buy
Now!**

SoundPro DL Datalogging Type 2 Sound Level Meter

- Acoustic standards: EN/IEC 61672, ANSI S1.4-1983, ANSI S1.43/1997, EC/IEC 61260, ANSI S1.11-2004, IEC 60651, and IEC 60804
- Measures SPL, Max, Min, Peak, Ln, Leq, Lavg, Sel, TWA, Taktm, Dose, PDose, Ldn, CNEL, and exposure
- Class 2 frequency models with 1/1 or 1/3 octave band filters
- Datalogging capacity determined by logging interval and SD media

Models and Accessories for Sale

Description	Catalog No	Price
SoundPro DL datalogging sound level meter	SP-DL-2	\$2615.00
SoundPro DL with AC-300 calibrator	SP-DL-2-AC3	3137.00
SoundPro DL with 1/1 octave real-time analyzer	SP-DL-2-1/1	3732.00
SoundPro DL, 1/1 octave real-time analyzer, AC-300	SP-DL-2-1/1-AC3	4254.00
SoundPro DL 1/1 and 1/3 octave real-time analyzers	SP-DL-2-1/3	4342.00
SoundPro DL, 1/1 and 1/3 octave real-time analyzer, AC-300	SP-DL-2-1/3-AC3	5364.00

Kits include meter, wrist strap, windscreen, calibrator adapter, USB cable, SD memory card, carrying case, 0.5" QE7052 microphone. Some models noted below also include AC-300 calibrator and 1/1 or 1/3 octave real-time analyzers.



Which Gilian Personal Sampling Pump is Right for You?

								
	GilAir Plus	Gilian 5000	GilAir-3	GilAir-5				
Flow Range	1–5,500 cc/min	20–5,000 cc/min	1–3,000 cc/min	1–5,000 cc/min				
High Flow	450–5,000 cc/min 0.5–5.0 LPM	800–5,000 cc/min 0.8–5.0 LPM	850–3,000 cc/min 0.75–3.0 LPM	850–5,000 cc/min 0.75–5.0 LPM				
Low/Constant Flow	20–449 cc/min No module needed	—	20–500 cc/min to 25" H2O (6.2 kPa)					
Display Data	Flow rate, sample time, battery level, actual/predicted run time, sampling mode, time and date, sample volume in actual conditions	Live flow rate, total sample time, total volume sampled, and low battery	Elapsed time (clock and timer models), low battery, flow fault					
Approvals	FM, CE/ATEX, IECEx	FM, CE/ATEX, FMC	UL, CE/ATEX					
Battery Type	Rechargeable 4.8V NiMH	Rechargeable 7.2V NiMH	Rechargeable 4.8V NiCd	Rechargeable 6V NiCd				
Charging Time	<3.5 Hours	<4 Hours	14–16 Hours					
Max. Pressure	Fault*	8 Hour Run**	Fault	8 Hour Run	Fault	8 Hour Run	Fault	8 Hour Run
0.35 LPM	25" H2O	25" H2O	—		—		—	
0.75 LPM	40" H2O	40" H2O	—		—		—	
1 LPM	40" H2O	35" H2O	70" H2O	70" H2O	30" H2O	25" H2O	37" H2O	29" H2O
2 LPM	40" H2O	30" H2O	60" H2O	60" H2O	20" H2O	15" H2O	37" H2O	26" H2O
2.5 LPM	37" H2O	30" H2O	50" H2O	50" H2O	20" H2O	15" H2O	32" H2O	23" H2O
3 LPM	35" H2O	30" H2O	50" H2O	50" H2O	10" H2O	8" H2O	32" H2O	23" H2O
3.5 LPM	32" H2O	25" H2O	30" H2O	30" H2O	—		20" H2O	18" H2O
4 LPM	30" H2O	20" H2O	30" H2O	30" H2O			20" H2O	18" H2O
5 LPM	15" H2O	12" H2O	24" H2O	20" H2O			18" H2O	8" H2O



Buy Now!

Gilian 5000 5-Liter Live Flow Air Sampling Pump

- Backflow pressures from 20" H2O at 5 LPM to 70" H2O at 1 LPM
- Flow range: 20–5000 cc/min total, 800–5,000 cc/min high flow, 20–800 cc/min with low flow adapter installed
- Compensates for changes in flow rate, pressure, and temperature
- Four stage program with repeat cycle allows sample scheduling or intermittent duty cycles
- Intrinsically safe FM Class I, Div 1, Groups A–D, Class II, Div 1, Groups E–G, Class III, T4; ATEX, CE approvals, plus EN 1232 compliant

RAECO Rents
Rent by the day, week, or month. See page 581.

Models and Accessories for Sale

Description	Catalog No	Price
Gilian 5000 basic pump kit, UL/ATEX	810-0801-01	\$882.00
Gilian 5000 starter kit, UL/ATEX	910-0802-01	922.00
Gilian 5000 starter kit, UL/ATEX, five-pump pack	910-0801-01	4831.00
Low flow adapter, 25–750 cc/min	801961	94.50
Fixed mount assembly for low flow adapter	801980	144.50
Replacement filters, 10-pack	811-0012-01	19.00

Basic kit comes with pump, 36" tubing, and user manual. **Starter kit comes with** pump, single unit charger, filter cassette holder, 36" tubing, and user manual. **5-Pack starter kit comes with** five each: pumps, filter cassette holders, 36" tubing lengths, user manuals, plus one 5-unit power station, and one carrying case.



Personal Sampling Pumps for Any Flow Range

GilAir Plus 5-Liter Universal Air Sampling Pump

- Constant flow 25-5000 cc/min, constant pressure 1-5000 cc/min
- No adapter needed for high-flow and low-flow constant pressure, constant flow
- Up to 40" H₂O back pressure in high flow, up to 25" H₂O in low flow
- Automatically performs restart to recover from temporary faults
- Dock provides charging plus communication to PC or calibrator
- STP model corrects flow rate for standard temperature and pressure
- Battery proven to last 12 hours on a single charge



Models and Accessories for Sale

Description	Catalog No	Price
GilAir Plus single basic pump kit	910-0901-US-R	\$999.00
GilAir Plus single datalogging pump kit	910-0902-US-R	1075.00
GilAir Plus single STP pump kit	910-0903-US-R	1296.00
GilAir Plus five-pack basic pump kit	910-0904-US-R	5298.00
GilAir Plus five-pack datalogging pump kit	910-0905-US-R	5370.00
GilAir Plus five-pack STP pump kit	910-0906-US-R	6445.00
SmartCal calibration cable for GilAir Plus and Gilibrator	780-0015-01-R	102.00
SmartCal calibration cable for GilAir Plus and Challenger	780-0015-02-R	84.00
SmartCal calibration cable for GilAir Plus and TSI 4146	780-0015-03-R	89.00

Single kit includes one sampling pump, single communication/charging dock, USB cable, AC power supply, filter cassette holder, charcoal tube holder, software, hex wrench, and user manual.

5-Pack kit includes five each: sampling pump, filter cassette holder, charcoal tube holder, certificate of performance plus one each: five-station communication/charging dock, AC power supply, hex wrench, software, and user manual.

Buy Now!



Gilian GilAir-3 3-Liter Constant Flow Sampling Pump

- Constant flow: 750 to 3,000 cc/min; Low flow: 1 to 750 cc/min
- Built-in rotameter and flow adjuster
- UL listed intrinsically safe, MSHA, CE, and SIRA approved
- Multiple sorbent tube capability

Models for Sale

Description	Catalog No	Price
GilAir-3 R (basic) pump, basic kit, UL/ATEX	800485-171	\$626.50
GilAir-3 RC (clock) pump, basic kit, UL/ATEX	800508-171	768.50
GilAir-3 RP (programmable) pump, basic kit, UL/ATEX	800510-171	794.00
GilAir-3 R (basic) pump starter kit, UL/ATEX	800485-171-1201	688.50
GilAir-3 RC (clock) pump starter kit, UL/ATEX	800508-171-1201	829.50
GilAir-3 RP (programmable) pump starter kit, UL/ATEX	800510-171-1201	863.00

Basic kit comes with pump, 36" tubing, air boss kit, reversible screwdriver, and user manual. **Starter kit comes with** pump, single unit charger, filter cassette holder, 36" tubing, air boss kit, reversible screwdriver, and user manual. **Order low flow adapter separately.**

Buy Now!



Gilian GilAir-5 5-Liter Constant Flow Sampling Pump

- Constant flow: 750 to 5,000 cc/min; Low flow: 20 to 500 cc/min
- Performs filter cassette, single, and multiple sorbent tube sampling
- Built-in rotameter, flow adjuster, and programmable timing options
- Flow Fault indicator lights if unit operates outside 5% of set flow rate
- Battery indicator lights when unit can operate eight hours within range

Models for Sale

Description	Catalog No	Price
GilAir-5 R (basic) pump, basic kit, UL/ATEX	800883-171	\$710.00
GilAir-5 RC (clock) pump, basic kit, UL/ATEX	800885-171	828.50
GilAir-5 RP (programmable) pump, basic kit, UL/ATEX	800884-171	866.00
GilAir-5 R (basic) pump starter kit, UL/ATEX	800883-171-1201	761.50
GilAir-5 RC (clock) pump starter kit, UL/ATEX	800885-171-1201	901.00
GilAir-5 RP (programmable) pump starter kit, UL/ATEX	800884-171-1201	937.50

Basic kit comes with pump, 36" tubing, air boss kit, reversible screwdriver, and user manual. **Starter kit comes with** pump, single unit charger, filter cassette holder, 36" tubing, air boss kit, reversible screwdriver, and user manual. **Order low flow adapter separately.**

Buy Now!



Sampling Pump Calibrators and Accessories



Buy Now!

Gilibrator 2 Deluxe Calibration Kit

- Primary standard accuracy and performance validation
- Interchangeable wet cells for standard, low, and high flow
- Microprocessor base LCD screen displays flow rate, calculated average of multiple flow samples in a series, and sample number
- PC interface kit for data download via RS-232 port

Models and Accessories for Sale

Description	Catalog No	Price
Gilibrator-2 Deluxe kit, three flow cells, no printer	801804	\$2304.00
Gilibrator-2 Standard flow kit, 20–6000 cc/min	800271	1309.00
Gilibrator-2 Low flow kit, 1–250 cc/min	800272	1330.50
Gilibrator-2 High flow kit, 2–30 LPM	800270	1453.00
Replacement 120V battery pack for Gilibrator-2	700560	68.50
120V single battery charger	401984	34.00

Kits include control unit, battery charger, carrying case, manual, specified wet cells, plus tubing, soap solution, and dispenser.



Buy Now!

Gilian Challenger Precision Air Flow Calibrator

- Precise air flow calibration from 1 to 30 LPM
- Wide temperature range from -22° to 131° F
- Displays both actual and standard flow rates, accurate to ± 0.75 reading
- Provides 90% recovery of pressure drop — key to reliable calibration
- Powered by four AA Alkaline batteries for 20+ hour runtime

Models and Accessories for Sale

Description	Catalog No	Price
Challenger air flow calibrator kit, 1–30 LPM	811-9911-03	\$1655.00
Challenger o-ring replacement kit	811-9913-01	4.50

Rent by the day, week, or month. See page 581.

Kits include unit, venturi for high and low flow calibration, four AA batteries, 18" tubing, CD software, NIST certificate of calibration and traceability, and user manual.

Sample Pump Accessories for Sale

Buy Now!

Description	Catalog No	Price
Cyclone assembly (10 μ m Nylon Dorr-Oliver)	800061	\$103.00
Cyclone sampler calibration jar	7013376	58.00
Luer taper adapter (6-pack)	200156-6	22.00
Filter cassette kit (required when sampling with cassette)	800143	31.50
50-pack MCE filter cassette, 0.8 μ m pore, 37mm diam.	GCU37080	76.50
Low flow module for GilAir-3/GilAir-5 20–500 cc/min	800518	130.00
Filter replacement pack (100/package) for GilAir-3/GilAir-5	201050-100	96.50

4046 and 4146 Primary Flow Calibrator Kits

- Continuous real-time readings for pump adjustment and calibration
- Flow range 0.01 to 20 or 2.5 to 300 liters per minute
- Battery powered, compact, light weight

Models and Accessories for Sale

Description	Catalog No	Price
Primary flow calibrator model, 0.01–20 LPM	4146	\$1125.00
Primary flow calibrator model, 2.5–300 LPM	4046	1370.00
Replacement flowmeter battery pack	4199	110.00

Kits include flow calibrator unit, battery pack, connector kit, carrying case, six AA Alkaline batteries, connectors, tubing, battery pack lugs, two-year warranty, user guide, NIST calibration certificate. 4146 also comes with dampening chamber module.

Rent by the day, week, or month. See page 581.



Buy Now!

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Rentals: 866-RENT-EHS
Fax: 815-464-8720

Digital Instrumentation for Thermal and Optical Testing

Testo Thermal Imagers with Built-In Digital Cameras



Model	Testo 875	Testo 882	Testo 885	Testo 890
Use	For commercial diagnostic measurement	For commercial and industrial diagnostics	For commercial, industrial, and research use	For industrial and research applications
Measurement points	19,200	76,800	76,800	307,200
Detector size	160x120 pixel	320x240 pixel	320x240 pixel	640x480 pixel
4X Super Resolution	320x240 pixels	640x480 pixel	640x480 pixel	1280x960 pixel
LCD size	3.5" screen	3.5" screen	4.3" touchscreen	4.3" touchscreen
Thermal sensitivity	80 or 50 mK NETD	50 mK NETD	30 mK NETD	40 mK NETD
Spectral range	8-14 μ m			
Focus	Manual	Manual and motorized	Manual and automatic	

Testo thermal imagers quickly and reliably detect anomalies, weak spots, and damage in industrial maintenance, production monitoring, and in research and development applications.

- Regular checks in electrical maintenance
- Support in preventive mechanical maintenance
- Quick, easy fluid level checks
- Safer high temperature measurements
- Consistent reliability in quality assurance and production monitoring

Materials and components can be tested completely without damage using thermal imaging technology. Problem zones can be identified without contact before a malfunction or fire risk occurs.

- Preventive maintenance for power applications
- Precise visualization of critical temperatures in microelectronics
- Quality control in the production of diecast plastic components
- Monitoring and checking solar energy systems
- Analysis of electrical distribution systems
- Inspection management in large manufacturing



Models and Accessories for Sale

Description	Catalog No	Price
875i-2 Deluxe thermal imager kit	0563 0875 73	\$5395.00
882 Thermal imager kit	0560 0882 70	7495.00
875/882 Accessories	0554 8805	506.00
Lens protection glass	0554 8814	183.00
Protective sun shield	0554 7806	395.00
4X Super Resolution		
885-2 Deluxe thermal imager kit	0563 0885 73	12995.00
890-2 Deluxe thermal imager kit	0563 0890 73	21995.00
885/890 Accessories	0554 0289	809.00
Lens protection glass	0554 7806	395.00
4X Super Resolution		

Deluxe kits include instrument with integrated digital camera, telephoto lens, protective lens, two-bay battery charger, spare battery, and protective sunshield with shoulder strap, hard shell carrying case, SD card, USB cable, power supply, and tripod mounting plate.

Standard kits (882) include a hard shelled case, SD card, USB cable, software, power supply, and tripod mounting plate.

Due to contract restrictions, Testo products are only available for sale within our Midwest regional territory. They can be rented anywhere within the US.

SAFETY INSTRUMENTS — PORTABLE

V04.2015

RAECO 527

Products in this catalog are available to rent anywhere in the US. Due to representative agreements with our manufacturer partners, not all products are available for sale in all areas and markets.

Delivery and training available only in Illinois, Indiana, Wisconsin, Kentucky, and Eastern Iowa.

Prices are current at publication, and are subject to change without notice.

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BW Technologies GasAlert Max XT II Four-Gas Monitor	536
BW Technologies GasAlert Quattro Personal Multigas Monitor	536
BW Technologies GasAlert Micro5 Five-Gas Detectors with PID	537
BW Technologies MicroDock II Calibration and Bump Test System	535
Enmet Formaldemeter htV Airborne Formaldehyde Meter	534
Gasmet DX4040 Portable FTIR Ambient Gas Analyzer	539
Ion Science Photoionization Detectors (PIDs) for VOC Detection	538
Ion Science Portable Mercury Vapor Monitor	534
Ion Science GasCheck Intrinsically Safe Handheld Gas Leak Detector	534
Morphix Technologies Direct-Read Passive Monitoring Badges	532
Photovac Inficon Portable Flame Ionization Detector (FID)	539
Sensidyne AP-20S Gas Detection Pump and Detector Tubes	533

Heat Stress Monitoring

3M Quest Portable Area Heat Stress Monitors	544
3M Quest Personal Heat Stress Monitor	544



Portable Instruments
Industrial Hygiene

Portable Instruments
Safety

Fixed Instruments
Gas Detection/Monitoring

Fixed Instruments
Analytics

Flow

RAECO Rents

Looking for Training for Your Portable Instruments?

Online Training

Need to learn how to perform fit tests with a TSI PortaCount system? Having trouble figuring out how to get data from your BW Technologies gas monitors or 3M Quest noise and sound meters?

The answers are as close as our Online Training Center. In just five minutes, you'll get a step-by-step tutorial on how to load data analysis software on your PC, connect your instrument to a PC, transfer data, and view it in the manufacturer's software.

TSI has provided us with a full series of video clips for respirator fit testing, from basic introductions, to setup, to standard exercises

and tips to make the PortaCount systems work best for you.

Best yet, they're all available for FREE. Just visit www.Raeco.com and click on the [Training Center](#) link in the toolbar.

A Note About Calibration Gases

Because of their classification as hazardous materials, calibration gases are not included with any of our instruments. You can contact RAECO to order them separately. All calibration gas orders will be subject to handling charges and HazMat shipping fees.

QFIT™ OSHA-Approved Qualitative Respirator Fit Tester



Features

- Only OSHA-approved automated nebulizer for Bitrex® and Saccharin
- For half-face, tight-fitting elastomeric respirators, Series-95, P1, and P2 filtering facepiece respirators
- Eliminates repetitive stress disorders
- Pre-filled cartridges reduce mess and handling of solutions
- Lightweight, portable, battery operated
- Generates a consistent test agent with pump-driven nebulizer
- Reduces clogging of saccharin solution
- Interactive training CD available for initial and follow-up training



TSI's Qfit respirator is the only OSHA-approved (29CFR 1910-134) automated pump-driven nebulizer for Bitrex and Saccharin, to qualitatively test the integrity of respirators. The Qfit uses pre-filled cartridges, eliminating the nuisance of mixing, handling, and refilling solutions.

At the push of a button, the Qfit fit tester generates a consistent test agent. Removing hand aspiration from the equation increases test reliability, since no two squeeze bulb tests can be guaranteed to be conducted the same. The pump-driven nebulizer also eliminates the repetitive stress disorders associated with using squeeze-bulb nebulizers.

Qfit comes in two versions: automatic and manual. Both replace the need to repetitively hand-aspirate a rubber squeeze bulb, by using an integral pump to disperse sensitivity and fit test solutions, and both work in either handheld or remote modes. The automatic version features a built-in timing sequence that automatically executes the fit test protocol. The manual version requires you to control the device manually to complete the test.

Traditional qualitative fit testing procedures that use a hand-aspirated squeeze bulb nebulizer can require anywhere from 85 to 255 pump strokes to complete sensitivity and fit tests on just one employee. So, if an employee passes a 10-stroke sensitivity test, they will require 75 more pump strokes to complete the fit test.

The automatic Qfit will complete the same sensitivity and fit test in two button pushes (reducing work by more than 95%), and the manual Qfit will do the same in a total of 17 button pushes (reducing work by 80%). If you test hundreds of people per year, this savings adds up quickly!



Don't forget the cartridges!

A limited supply of Bitrex and Saccharin sensitivity and fit test cartridges ship in the Qfit kits. Please order additional. Remember, you will need both sensitivity and fit test cartridges to complete your tests.

Models and Accessories for Sale

Description		Catalog No	Price
Qfit automatic model, basic kit	This product has been retired by TSI. Consumable cartridges and some replacement parts are still available.		
Qfit automatic model, deluxe kit			
Qfit manual model, basic kit			
Qfit manual model, deluxe kit			
Accessories	Remote handheld nebulizer unit	805015	125.00
Bitrex Cartridges	Sensitivity cartridges	805009	40.00
	Fit test cartridges, 8-10 tests ea. (80 tests/box)	805010	80.00
Saccharin Cartridges	Sensitivity cartridges	805012	40.00
	Fit test cartridges, 8-10 tests ea. (80 tests/box)	805013	80.00
Replacement Parts	Qfit replacement hood	805005	30.00
	Qfit replacement power supply	805007	40.00
	Qfit replacement elbow	805008	15.00

Basic kits include Qfit powered nebulizer with rechargeable battery, AC power supply, two elbows with extension tubes, fit test hood, cartridge holder, Bitrex combo box (8 sensitivity/8 fit test) cartridges, Saccharin combo box (8 sensitivity/8 fit test) cartridges, user manual, quick start guide, and one-year warranty.

Deluxe kits include all basic kit parts plus a remote handheld nebulizer, a hood pouch, blue soft-sided carrying case, and a Qfit instructional CD.

PORTACOUNT® Pro Quantitative Respirator Fit Testers



Features

- Tests people while wearing their own masks to verify proper respirator sizing and fit
- Measures fit factor (>10,000) directly, and shows the effects of mask positioning and strap tightness
- Tests full-face and half-face tight-fitting respirator facepieces, plus NIOSH series 95, 99, and 100 filtering facepieces
- OSHA-compliant for tight-fitting respirators (8030) or for both tight-fitting respirators and disposable masks (8038)
- Stand-alone operation — no external PC required for tests— makes unit quicker to set up and easier to transport and use
- Color touch screen lets you enter user data and administer tests with a the touch of a finger, pen, or stylus
- FitPro™ fit testing software for your PC automates test process, stores results in a database, generates reports, and prints fit test result ID cards to a laser printer
- Prices start under \$8,000

Top of the class and still climbing

TSI, the leader in respirator fit testing, just made their best even better. The OSHA-compliant PortaCount® Pro and Pro+ fit testers offer fast, simple, stand-alone operation.

No other respirator fit testers on the market can quantitatively fit test all types of respirators — gas masks, SCBAs, respirators, and N95 filtering facepiece disposable masks.

Existing qualitative fit test methods, like irritant smoke, banana oil, saccharin and Bitrex® are inherently limited to pass/fail levels and a fit factor of 100. OSHA and NFPA require a protection factor of at least 500 for full-face respirators, and ANSI requires 1000. There's no qualitative method to meet these requirements.

TSI's PortaCount® family eliminates the guesswork associated with tedious and error-prone qualitative fit test methods. PortaCount fit testers measure fit while the user performs a series of moving, breathing, and talking exercises, designed to simulate the same movements users will make in the field.

Learn more about the PortaCount® Pro at
www.raeco.com/get/8030.php

See next page for sales and rental pricing.

Two versions

PortaCount Pro 8030 is great for industrial applications that test traditional tight-fitting full-face or half-face masks, or dust masks with N99 or N100 filtering efficiency.

PortaCount Pro+ 8038 tests both industrial and N95 disposable masks. Unlike the older PortaCount Plus models, you don't need an N95-Companion unit to switch from testing tight-fitting masks to filtering facepieces.

Working with or without a PC

Unlike the older versions of the PortaCount (8020, 8028, and 8095 models), you don't need a PC to perform fit tests. Test data is stored on a formatted USB flash drive, and can be transferred to a PC for report generation and ID card printing when you need it.

Both the PortaCount Pro and Pro+ have color touch screens that let you control the test with the touch of a finger, pen, or stylus. The touch screens also provide input for information on each person and the respirators being tested.

If you prefer to work with your PortaCount Pro unit connected to a PC, the new FitPro™ fit test software steps you through the same procedures, and it stores results in a database for easy report generation, retrieval, and regulatory compliance.

Immediate, accurate results for fit testing SCBA respirators and disposable masks.

530

RAECO

V 04.2015

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Fax: 815-464-8720

PORTACOUNT® Pro Series Respirator Fit Testers



TSI PORTACOUNT® Pro and Pro+ Respirator Fit Testers



See next page for respirator mask adapter kits, particle generator, HEPA filters, tubing, and fit test ID card printer and supplies.

PortaCount Pro 8030

- For disposable filtering-facepieces Series 100, 99, P3, and HEPA masks
- Half and full-face masks, gas masks, PAPR, and SCBA mask fit testing
- Stand-alone operation for quick setup and use; Connect to a PC to automate, using FitPro™ fit test software, and to print ID cards
- Computes fit factor using microscopic particles in ambient air

TSI 8030 ships with base unit, AC adapter, alcohol cartridge, alcohol fill capsule, storage cap, two zero check filters, 8016 alcohol supplies, 3/16" and 1/4" hose adapters, two spare alcohol wicks, carrying case, FitPro software CD, 1GB flash memory drive, USB cable, user manual, and two-year warranty.

PortaCount Pro+ 8038

- Fit test ANY tight-fitting respirator, plus N95, P2, and P1 disposables; OSHA-compliant for all respirators
- Switches between different respirator types in less than a minute
- Built-in N95 Companion™ technology
- Faster N95 testing — reduced from 10:24 minutes to 7:15 minutes
- Combines functions of retired 8020 and 8095 models

TSI 8038 ships with base unit, AC adapter, alcohol cartridge, alcohol fill capsule, storage cap, two zero check filters, 8016 alcohol supplies, 3/16" and 1/4" hose adapters, two spare alcohol wicks, 100 sampling probes (rental ships with 25), probe insertion tool, neck strap, carrying case, FitPro software CD, 1GB flash memory drive, USB cable, user manual, and two-year warranty.

Models and Accessories for Sale

Description	Catalog No	Price
PortaCount Pro respirator fit tester for SCBA and PAPR	8030	\$9005.00
Three-year contract for TSI factory annual calibration of 8030	CLC3-8030	1835.00
PortaCount Pro+ respirator fit tester for SCBA, PAPR, and N95	8038	12810.00
Three-year contract for TSI factory annual calibration of 8038	CLC3-8038	2630.00

Due to contract restrictions, TSI PortaCount® instruments are only available for sale within our Midwest regional territory (though parts are available for unrestricted sale). They can be rented anywhere within the US.

Buy Now!

TSI MITA 8120 Mask Integrity Test Accessory

- Works with TSI PortaCount Pros to quickly detect leaks in CBRN gas masks and commercial respirators
- Separate tests for overall mask integrity (Protection Factor), exhalation valve, and drink tube
- Single head form with enhanced bladder seal system creates a tight seal for full face respirator types and sizes
- Easy-to-read display with an intuitive step-by-step test sequence — minimal operator training required
- Capable of more than 12 mask assessments per hour



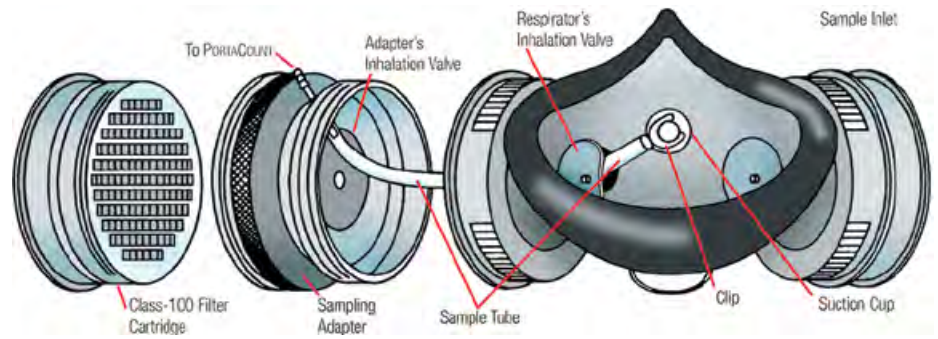
Description	Catalog No	Price
Mask Integrity Test Accessory (MITA)	8120	\$14200.00
Mask Adapter Kits	For M40, FR-M40, M45, MCU2P, and Millennium	8125-01 605.00
	For M50, and C50	8125-02 970.00
	For M53, and FM12	8125-03 480.00
	For C4	8125-04 485.00
	For MSA Ultra Elite (with 40mm Threaded, Slide or Push-to-Connect CBRN versions); MSA Advantage 3000	8125-05 230.00
	For 3M 6000/7000 Series; 3M7800s/7800B CBRN	8125-06 490.00
	For Scott AV2000/AV3000	8125-07 450.00
	For Draeger Panorama Nova; and MSA Ultra Twin	8125-08 180.00
Refills	Emery Oil, 500 ml Bottle	801776 70.00

Ships with headform, headform mask sample plug, #1 and #3 rubber stoppers, mask bypass hose, twin tube with 1" relief cut, aerosol wand, aerosol generator assembly, aerosol containment hood, aerosol mixer, mask filter plug, two HEPA filter canisters, drink tube sampling hose, DT and EV bypass hose, 500 mL Emery oil, PortaCount interface cable (for 8030/8038), MITA computer cable, USB to serial adapter, MITA Communicator software CD, universal AC adapter with line cord, quick start guide, self-check components reference card, user manual, calibration certificate, and one-year warranty.

Order mask adapter kits separately, as needed.

Buy Now!

Respirator Adapter Kits and Accessories



Respirator adapter kits are required for use with TSI PORTACOUNT® Plus 8020 and 8095 and PORTACOUNT® Pro 8030 and Pro+ 8038 Units

Note: Mask adapter kits are not included with the PORTACOUNT. If the adapter does not come with your respirator mask, or is not readily available from the respirator manufacturer, see below for a compatible unit. Unless otherwise noted, each kit includes an adapter, P100 HEPA filters, and disposable components for 200 fit tests. See refill kits for additional test supplies.

**Buy
Now!**

Adapters and Fit Test Consumables

Adapter to Fit...	Compatible Refill Kit	Catalog Number	Price
3M masks, Including those with detachable filters	800553	8025-16	\$310.00
Avon masks with drink tube (Also fits US M50)	801633	8025-AVON	155.00
Dräger Combitox Nova RD91, Cirrus RD91	800553	8025-24	220.00
Dräger masks with standard 40mm filter threads or snap-in connectors		8025-26	495.00
Interspiro Spiromatic and Spirolite SCBA facepiece		8025-21	665.00
Interspiro Spiromatic S and S4 SCBA facepiece		8025-21S	730.00
MSA Advantage 1000, Millennium; Also fits 3M FR-M40, US Military MCU-2/P, M40		8025-29	135.00
MSA Millennium, US Military M40/MCU-2P) Adapter Only		1081379	55.00
MSA Advantage respirators with bayonet filters	800785	8025-30	165.00
MSA Comfo and Advantage half or full-face masks	800785	8025-14	360.00
MSA Ultra Elite, Advantage 3100 (40mm screw-ins)	800785	8025-22	320.00
MSA Ultra Elite with Quarter-Turn MMR (Not for Firehawk)		8025-22Q	360.00
MSA UltraView (Including SCBA with screw-in connection, Ultra Twin, Phalanx)		8025-15	220.00
MSA UltraView with Quarter-Turn MMR		8025-15Q	260.00
North masks (5400, 5500, 7600-7800, 80004, 800045, 85400A, 85500A, 800 series)	800553	8025-17	285.00
Protector/Sabre Phantom PAPR with 48mm thread	800553	8025-28	215.00
Scott full-face AV-2000, AV-3000, Scott-O-Vista, 65		8025-20	205.00
Survivair air purifying masks (Includes 2000, Blue 1, Low Maintenance, 4000, 20/20)	800553	8025-12	225.00
Survivair positive-pressure SCBA masks, Panther-style MMR (Classic, 20/20, OPTI-Fit)		8025-13	435.00
US Safety, all masks	800553	8025-25	200.00
Wilson F-series facepieces with 1" screw-on filters	800553	8025-23	385.00
Wilson T-series bayonet-type masks, GT-series small diameter screw-on connections		8025-19	270.00
Generic 40mm facepieces	800553	8025-CEN	220.00
Gas masks with standard US military drink tubes	801633	8025-USMIL	200.00
Accessories and Consumables			
Filtering Facepieces Probe Kit (500 probes and tool set)		8025-N95	190.00
Refill Kit for 8025-N95 (500 probes and push-nuts)		8025-N95R	130.00
Consumables Refill Kit #1 (200 tests: Includes 50' tubing, 200 clips, 200 suction cups)		800553	120.00
Consumables Refill Kit #2 (200 tests: Includes 50' tubing, 200 clips, 200 suction cups)		800785	120.00
Consumables Refill Kit #3 (200 tests: Includes 50' tubing, 200 clips, 200 suction cups)		801633	135.00
Particle generator for PortaCount Pro and Pro+ (Included with PortaCount Plus models)		8026	840.00
Salt Tablets for Particle Generator (Bag of 100)		803011	40.00
Reagent-grade alcohol (Case of 16 30ml bottles)		8016	115.00
Zero check HEPA filter for PortaCount Plus and N95-Companion		1602066	30.00
Zero check HEPA filter for PortaCount Pro and Pro+		803X-ZFLTR	35.00
10-Pack alcohol wicks with screens for PortaCount Plus 8020 and 8028		8023	135.00
10-Pack alcohol wicks with screens for PortaCount Pro 8030 and Pro+ 8038		8033	125.00
Sampling hose kit, three 5' twin tubes, 10 adapters each, 3/16" and 1/4"		8017	115.00
Twin tube, one 5' blue/clear tube		800197	25.00
18" Pendant twin tubes for N95 testing, pack of five		801501	45.00



Direct-Read Passive Monitoring Badges



ChromAir and SafeAir Direct-Read Passive Monitoring Badges

CHROMAIR
SYSTEM**For exposure limits**

Don't see the badge
you need?
Visit www.Raeco.com
or call 800-852-9795.

Model Selection Guides — ChromAir

Analyte	Range (ppm-hr)	Min. Detectable Concentration (ppm) 8 Hours	Interferences	Catalog Number (10/Box)	Price
Acetone	20 - 24000	2.50	NH ₃ , MEK, MIBK, MPK	380020-10	\$124.00
Methyl Ethyl Ketone	18 - 21600	2.25	NH ₃ , Acetone, MIBK, MPK		
Methyl Isobutyl Ketone	16 - 19200	2.0	NH ₃ , MEK, Acetone, MPK		
Ammonia	4 - 300	0.50	RNH ₂	380003-10	124.00
Carbon Monoxide	10 - 525	1.25	Alkenes, H ₂ , H ₂ S	380008-10	124.00
Chlorine	0.4 - 13	0.05	Br ₂ , I ₂ , HCl	380004-10	124.00
Formaldehyde	0.3 - 12	0.04	Acrolein	380007-10	124.00
Glutaraldehyde	STEL (15 min)	0.04 - 0.95	None Known	380017-10	128.25
Hydrogen Sulfide	1 - 240	0.13	None Known	380009-10	124.00
Mercury	0.125 - 1.6 mg/m ³ -hr	0.02 mg/m ³	Strong Oxidizers	380018-10	128.25
Ozone	0.08 - 1.6	0.01	H ₂ O ₂ , NO ₂	380010-10	124.00

*All ChromAir badges ship direct from the factory via air service.***SAFEAIR**
SYSTEM**For presence of chemical hazards**

Don't forget to order
your reusable clips!
#401966-10
\$6.50 per 10-pack

Model Selection Guides — SafeAir

**Maximum/Shortest Recommended Sampling Times.*

Analyte	Threshold Level	Min. Detectable Concentration (ppm) 8 Hours	MRST* (Hrs)	SRST* (Mins)	Cross-Sensitivity	Catalog Number (50/Box)	Price
Aromatic Isocyanates (MDI/TDI)	TDI: 5.0 ppb-hr MDI: 3.5 ppb-hr	TDI: 0.6 ppb MDI: 0.4 ppb	24	15	Aromatic Isocyanates, Hydrazine	382001-50	\$189.50
Carbon Monoxide	7 ppm-hr	1 ppm	10	15	Alkenes, H ₂ , H ₂ S	382012-50	155.00
Chlorine	0.18 ppm-hr	0.025 ppm	48	15	Br ₂ , HCl, I ₂	382009-50	155.00
Chlorine/Chlorine Dioxide	Cl ₂ : 0.18 ppm-hr ClO ₂ : 0.2 ppm-hr	Cl ₂ : 0.025 ppm ClO ₂ : 0.025 ppm	10	15	Cl ₂ : Br ₂ , HCl, I ₂ ClO ₂ : NO ₂ , High Concentration O ₃	382003-50	189.50
Formaldehyde	0.4 ppm-hr	0.05 ppm	16	15	Acrolein	382011-50	155.00
Hydrazine	8.0 ppb-hr	1.0 ppb	48	15	MMH, Aromatic Amines	382002-50	189.50
Hydrogen Chloride	2.0 ppm STEL				None Known	382024-50	189.50
Ozone	0.05 ppm-hr	0.006 ppm	48	15	H ₂ O ₂ , above 1 ppm NO ₂	382004-50	155.00
Phosgene	0.015 ppm-hr	0.002 ppm	72	1	COBr ₂ , CNCl, ClCO ₂	382000-50	155.00
Sulfur Dioxide	0.2 ppm-hr	0.025 ppm	48	15	None Known	382014-50	155.00

All SafeAir badges ship direct from the factory via air service.

Color Comparators

For higher resolution and wider range, use your ChromAir or SafeAir badge with a color comparator.

ChromAir Color Comparators	Range (ppm-hr)*	Catalog Number	Price
Carbon Monoxide	4 - 630	384006	\$54.00
Chlorine	0.2 - 20.0	384005	54.00
Formaldehyde	0.3 - 40.0	384001	54.00
Hydrogen Sulfide	0.4 - 350.0	384002	54.00
Mercury	0.12 - 3.2	384003	54.00

**Range mg/m³-hr*

SafeAir Color Comparators	Catalog Number	Price
Chlorine	383010	\$48.50
Chloroformates	383002	48.50
Hydrogen Chloride	383008	48.50
Hydrazine	383001	38.75
Phosgene	383000	38.75
Phosgene Extended Range	383007	48.50
Toluene Diisocyanate (TDI)	383005	48.50



Gas Detection in a Single Stroke

Sensidyne AP-20S Gas Detection Pump Kit

- Single stroke operation for ease of use
- Ergonomically designed, sure-grip, lightweight and corrosion resistant
- Failsafe handle locks in two positions, eliminating incomplete samples
- No lab turnaround time, no power or calibration needed
- Indicates flow finish and concentration level of measured gas or vapor

Kit includes Pump, carrying bag, three spare tube holders, lubricant, and manual. Detector tubes sold separately. See below for common gases. Visit Raeco.com to buy others.

Models and Accessories for Sale

Description	Catalog No	Price
AP-20S gas detection pump kit	830-0001-01	\$407.00
Accessories	Grease	41580020 19.00
	Rubber Tube Holder (Inlet Flange) Pack of 2	830-1005-01 10.00
	Canvas Pump Kit Carrying Bag	7013586 37.00
	Hot Probe	7013602 195.00
	Hot Probe Holder for AP-20S Pump	830-1013-01 145.00
	Deluxe Tube Tip Cutter	7013601 54.00
	Telescoping Extension Probe (9.84'/3m)	830-1003-01 902.00
	Extension Hose (16.4'/5m)	830-1001-01 163.00
	Extension Hose (32.8'/10m)	830-1002-01 213.00

RAECO Rents
*Rent by the day,
week, or month.
See page 582.*



**Buy
Now!**

Detector Tubes Model Selection Guide (Boxes of 10 Tubes for \$69.00 per Box)

Gas/Vapor	Range	Catalog Number
Acetic Acid	1-50 ppm	216S
Acetone	20-5000 ppm	102SD
Acrolein	0.005-1.8 %v	136
Acrylonitrile	0.25-20 ppm	128SD
Ammonia	0.1-1.0 %v	105SM
	0.5-10.0 %v	105SA
	0.5-30 %v	105SH
	0.2-20 ppm	105SD
	1-200 ppm	105SE
	5-260 ppm	105SC
Benzene	50-900 ppm	105SB
	0.1-75 ppm	118SD
	0.2-80 ppm	118SE
Benzene in Hydrocarbons	1-100 ppm	118SC
Butadiene	5-300 ppm	118SB
Carbon Dioxide	30-600 ppm	168SB
	0.1-2.6 %v	126SA
	1.0-20.0 %v	126SH
	5-50 %v	126UH
Carbon Disulfide	100-4000 ppm	126SF
	0.8-50 ppm	141SB
Carbon Monoxide	30-500 ppm	141SA
	0.1-2.0 %v	106SH
	0.1-20 %v	106UH
	1-50 ppm	106SC
	10-250 ppm	106S
	30-500 ppm	106SS
Carbon Tetrachloride	5-2000 ppm	106SA
Carbonyl Sulfide	0.5-60 ppm	147S
Chlorine	5-60 ppm	239S
	0.05-2 ppm	109U
	0.1-10 ppm	109SB
Dichloromethane	1-40 ppm	109SA
	10-1000 ppm	180S
Diethyl/Trimethyl Amine	1-20 ppm	222S
Dimethyl/Ethyl/ Methyl Amine	1-20 ppm	227S
Ethyl/Butyl/Isobutyl Acrylate	5-60 ppm	211U
Ethyl & Methyl Cellosolve	5-500 ppm	190U
Ethyl Alcohol	0.05-5.0 %v	104SA

Gas/Vapor	Range	Catalog Number
Ethyl Benzene	10-500 ppm	179S
Ethyl Mercaptan	1-160 ppm	165SA
Ethyl Mercaptan (LP Gas)	2.5-80 ppm	165SB
Ethylene	20-1200 ppm	108SA
Ethylene Glycol	20-250 mg/M3	232SA
Formaldehyde	0.05-4 ppm	171SC
	1-35 ppm	171SB
Gasoline	0.05-0.6 %v	110S
General Hydrocarbons	50-1400 ppm	187S
Hydrogen	0.05-0.8 %v	137U
Hydrogen Chloride	0.4-40 ppm	173SB
	20-1200 ppm	173SA
Hydrogen Cyanide	0.3-8 ppm	112SC
	0.5-100 ppm	112SB
Hydrogen Fluoride	0.25-30 ppm	156S
Hydrogen Peroxide	0.5-10 ppm	247S
Hydrogen Sulfide	0.25-4 gr/100CF	120GT
	0.1-4.0 %v	120SH
	0.2-6.0 ppm	120U
	0.5-40 ppm	120SE
	1-60 ppm	120SD
	0.75-300 ppm	120SB
Hydrogen Sulfide in SO2	25-2000 ppm	120SF
	0.005-0.16 %v	120SC
Hydrogen Sulfide & Mercaptans	1-30 ppm	282S
Isobutyl Acetate	10-400 ppm	153U
Isopropyl & Ethyl Acetate	10-1000 ppm	111U
Isopropyl Alcohol	20-1200 ppm	150U
Mercaptans	0.5-10 ppm	130U
	0.05-6.0 %v	119SA
Methyl Alcohol	20-1000 ppm	119U
	0.5-10 ppm	157SC
Methyl Bromide	0.4-80 ppm	157SB
	10-500 ppm	157SA
Methyl Ethyl Ketone	20-1500 ppm	139U
Methyl Mercaptan	5-140 ppm	164SA
	50-1000 ppm	164SH

Gas/Vapor	Range	Catalog Number
Methyl Styrene	10-500 ppm	193S
N,N-Dimethyl Formamide	1-30 ppm	196S
n-Hexane	5-800 ppm	1135C
	50-1400 ppm	1135B
Nitric Acid Vapor	1-20 ppm	233S
Nitric Oxide & NO2	NO: 10-300 ppm, NO2: 1-40 ppm	174A
	0.1-1.0 ppm	117SD
Nitrogen Dioxide	0.5-30 ppm	1175B
	20-1000 ppm	1175A
	0.5-30 ppm	175U
Nitrogen Oxides	20-250 ppm	175SA
	100-2500 ppm	175SH
Organic gases	Qualitative	186B
Oxygen	1.5-24 %v	159SC
Ozone	0.025-3.0 ppm	182U
Phenol & Cresol	2.5-100 ppm	182SB
	0.5-25 ppm	183U
Propyl Acetate	20-1000 ppm	151U
Styrene	1-100 ppm	158SB
	2.5-300 ppm	158S
Sulfide Ion **	0.5-10 ppm	200SB
	2-1000 ppm	200SA
Sulfur Dioxide	0.25-10 ppm	103SE
	1-60 ppm	103SD
Sulfuric Acid	20-300 ppm	103SC
	0.5-5 mg/M3	244U
Tetrachloroethylene	0.2-10 ppm	135SB
Toluene	2-100 ppm	124SB
	10-500 ppm	124SA
	100-3000 ppm	124SH
Trichloroethylene	0.2-16 ppm	134SB
	5-300 ppm	134SA
Water Vapor	0.05-2.0 mg/l	177U
	1.7-33.8 mg/l	177SA
Water Vapor **	2-12 lb/MMCF	177UR
	3-80 lb/MMCF	177UL
Xylene	5-200 ppm	143SB

**** Box Price: \$67.00**

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RAECO

V 04/2015

RAECO LIC-LLC
www.RAECO.com
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135 Bernice Drive
Bensenville, IL 60106-3366Wisconsin Operating Office
5160 North 125th Street
Butler, WI 53007-1332Sales: 800-852-9795
Rentals: 866-RENT-EHS
Fax: 815-464-8720

Single Gas, Leak, and Airborne Contaminant Detectors



Formaldemeter htV Airborne Formaldehyde Meter

- Electrochemical formaldehyde sensor and built-in sampling pumps
- Rapid response time (< 10 seconds)
- Display shows real-time formaldehyde levels, temperature, humidity
- Sampling frequency typically once every three to five minutes, depending on previous readings; Automatically stores last 10 readings
- Simple in-field calibration
- Continuous monitoring via stand-alone AMS-2 base station or SPC-2 controller module (connecting Formaldemeter unit directly to PC)

RAECO Rents
**Rent by the day,
week, or month.
See page 583.**

**Buy
Now!**

Models and Accessories for Sale

Description	Catalog No	Price
Formaldemeter htV kit (0.05–10 ppm detection range)	02700-100	\$2295.00
AMS-2 datalogging base station, download software, cable	02700-253	3195.00
SPC-2 single point controller for continuous monitoring via PC	02700-262	2195.00
Phenol filters, replacement 10-pack	02700-002	50.00
Formaldehyde sensor replacement (3-4 year typical life)	02700-003	510.00

Formaldemeter htV kit includes the meter, 10 phenol filters, thermometer, pen, 9V Alkaline battery, calibration standard, instruction manual, and case. **SPC-2 kit** communication transfer module with power supply, htV connector cable, serial port and USB cables and connectors, plus download software.



**Buy
Now!**

GasCheck Intrinsically Safe Handheld Gas Leak Detector

- For search and location of non-flammable gases — ideal for Helium detection; Calibrated against Helium, R134a and other gases
- Micro thermal conductivity detector (TCD)
- 5000is logs up to 36,000 data points with time/date stamp
- Flashing LED and 90 dBA audible alarms
- Peak Hold function shows maximum leak rate

RAECO Rents
**Rent by the day,
week, or month.
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Models and Accessories for Sale

Description	Catalog No	Price
3000is intrinsically safe gas leak detector	GC3SABXS-X	\$4722.00
5000is intrinsically safe datalogging gas leak detector	GC5SABXS-X	5916.00
IR Link for GasCheck 5000is, infrared adapter and software	A-28170M	1125.00

Comes with Four AA Alkaline batteries, 10" probe, nozzle replacement tool, spare battery clip, operation manual, and ABS plastic carrying case.

MVI Portable Real-Time Mercury Vapor Monitor

- Dual beam UV absorption technology — no saturation, no regeneration — eliminates instrument downtime
- Range 0.1 to 200 and 1.0 to 1999 microgram/cubic meter
- High performance pump delivers fast indication and recovery
- Real time response within 3 seconds
- Audible alarm and digital display standard

RAECO Rents
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week, or month.
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Models and Accessories for Sale

Description	Catalog No	Price
Portable mercury vapor indicator with case	MVSSRXME-X	\$9600.00
Data logger assembly	A-869204	625.00
PTFE water trap filter, 1.0 micron	4/JLF-03	10.00
Probe and 10-pack water trap filters	A-26007	100.00
Carbon filter assembly	A-31057	51.00

MVI includes device and battery charger, stainless steel probe, zeroing charcoal filter, internal dust filter, and certificate of calibration. Order other accessories separately.



**Buy
Now!**



Single Gas Detectors with Adjustable Alarms



Buy Now!

Download readings to your PC with the IR DataLink USB adapter.



GasAlert Extreme Single Gas Monitors

- Direct real-time gas concentrations on large LCD display
- Compact and lightweight (2.9 oz), so it's comfortable to wear
- Visual, vibrating, and 95 dB audible alarms for high, low, STEL and TWA
- Secure and accurate history with datalogging; Uses compatible infrared to USB DataLink adapter to take readings from unit to PC
- Fully functional self-test at every startup for sensor integrity, battery status, circuit integrity, and audible/visual alarms
- Compatible with MicroDock II calibration and bump test station, plus hand aspirator or Sampler motorized pump kit
- Two-year battery life — for use through consecutive work shifts
- UL-approved Class I, Div 1, Groups A–D and Class II, Div 1, Groups E–G

Rent by the day, week, or month. See page 582.

Models and Accessories for Sale

Description		Catalog No	Price
GasAlert Extreme single gas monitor			
Gas and Range	Ammonia (NH3) 0-400 ppm	GAXT-A2-DL	\$510.00
	Carbon monoxide (CO) 0-1000 ppm	GAXT-M-DL	275.00
	H2-resistant carbon monoxide (CO) 0-1000 ppm	GAXT-M2-DL	410.00
	Chlorine (Cl2) 0-50.0 ppm	GAXT-C-DL	410.00
	Hydrogen sulfide (H2S) 0-100 ppm	GAXT-H-DL	275.00
	Oxygen (O2) 0-30%	GAXT-X-DL-2	275.00
IR DataLink USB adapter (Required for data downloads)		GA-USB2	230.00
3V spare Lithium battery		E2829	15.00
Replacement Sensors			
Ammonia (NH3) sensor, 0-400 ppm		SR-A204	350.00
Carbon monoxide (CO) sensor, 0-1000 ppm		SR-M04-SC	225.00
H2-resistant carbon monoxide (CO) sensor, 0-1000 ppm		PS-RM04H	300.00
Chlorine (Cl2) sensor, 0-50.0 ppm		PS-RC10	350.00
Hydrogen sulfide (H2S) sensor, 0-100 ppm		PS-RH04S	225.00
Oxygen (O2) sensor, 0-30%		SR-X10-C1	165.00

Don't see the gas or range you need? Call us!

Kit includes detector in concussion-proof housing, selected sensor, field replaceable battery, stainless steel alligator clip, calibration/test cap and hose, user manual and quick reference card.



Buy Now!

MicroDock II Automatic Test and Calibration Station

- Stand-alone or networkable, fully automatic hands-free calibration and functional bump testing
- Verifies performance of audible and visual alarms
- Stores and updates calibration records, including time and date stamps for last calibration and last bump test
- Add extra docking modules for working with multiple gas detectors

Ethernet-capable, just add Network USB adapter!



Models and Accessories for Sale

Description		Catalog No	Price
MicroDock II calibration and bump test base station		DOCK2-2-00-G	\$995.00
Demand flow regulator (required)		REG-DF-1	360.00
Network USB to Ethernet communication adapter		DOCK2-LAN-1P	435.00
Wall mount adapter kit for base station, docking modules		WMA-DOCK	25.00
GasAlert Quattro	Docking module, charging, power supply	DOCK2-0-1CN-00-G	550.00
	Docking module, non-charging	DOCK2-0-1N-00-G	500.00
GasAlert Micro5	Docking module, charging, power supply	DOCK2-0-1C1K-00-G	700.00
	Docking module, non-charging	DOCK2-0-1J-00-G*	550.00
GasAlert Max XT docking module, charging, power supply		DOCK2-0-1C1M-00-G	550.00
GasAlert Extreme docking module, non-charging		DOCK2-0-1D-00-G	500.00

Includes base station, docking modules (one per detector as needed), charging cable as ordered, AC line power adapter, memory card, BW Fleet Manager II data analysis software, USB connector cable, fresh air inlet filter, four C Alkaline batteries, 2' calibration gas hoses, one gas cylinder inlet fitting, and user manual.

Order detectors separately. Call for calibration gas pricing.

* Not for use with ClO2 or O3.

Portable Multigas Detectors



**Buy
Now!**

GasAlert Max XT II Personal Multigas Detector

- Continuous monitoring of CO, O₂, H₂S, and %LEL concentrations
- Integral sampling pump, built-in datalogging feature
- Visual, vibrating and 95 dB audible alarms for high, low, STEL, TWA, over limit, low battery, and pump
- Full function self-test of sensor and circuit integrity, battery status, and audible/visual alarms at startup; Continuous sensor and battery testing; Compatible with MicroDock II for calibration and bump tests

Basic unit includes detector, specified sensors, stainless steel alligator clip, concussion-proof housing, rechargeable lithium polymer battery and charging adapter, calibration hose, sampling hose with particulate filter, reversible screwdriver, five spare pump filters, printed manual plus CD-ROM.

Models and Accessories for Sale

Description		Catalog No	Price
GasAlert Max XT II datalogging 4-gas detector with pump		XT-XWHM-Y-NA	\$880.00
GasAlert Max XT II confined space kit		XT-CK-DL	475.00
Accessories	Auxiliary filter kit, 5-pack	M5-AF-K2	35.00
	Hydrophobic pump filter kit, 5-pack	XT-RF-H5	15.00
	Particulate pump filter kit, 5-pack	GA-PFMAX	15.00
	Quad sensor screen filters, 2-pack	XT-SS-1	20.00
	Replacement rechargeable battery pack	XT-BAT-K1	50.00
Replacement Sensors	MICROceL O ₂ sensor	SR-X2V	165.00
	MICROceL H ₂ S sensor	SR-H-MC	120.00
	MICROceL CO sensor	SR-M-MC	120.00
	MICROpeL LEL sensor	SR-W-MP75C	120.00

Confined space kit includes IR connectivity kit, 0.5 LPM regulator, 10' and 3' hoses, sampling probe, concussion-proof boot, auxiliary filter, FleetManager II software CD, and carrying case with foam insert. Order detector separately. Call for calibration gas options.



**Next generation
GasAlert Micro and
MiniMax X4**

**Buy
Now!**

**Patented SureCell™
toxic sensors and
Reflex™ sensor fault
diagnostics technology.**

GasAlert Quattro Personal Multigas Detector

- Continuous monitoring of CO, O₂, H₂S, and %LEL concentrations
- Full function self-test of sensor and circuit integrity, battery status, and audible/visual alarms at startup; Continuous sensor and battery testing; Compatible with MicroDock II for calibration and bump tests
- Multiple alarms: Six red LEDs, vibrating, 95 dB audible for high, low, STEL, TWA and over limit
- Enhanced resistance to common industrial cross-sensitive gases, like methanol and ethanol

Includes detector, sensors, rechargeable battery pack, wall charger, calibration cap and tubing, reversible screwdriver, concussion-proof housing, stainless steel alligator clip, user manual, materials booklet and technical reference guide.

Models and Accessories for Sale

Description		Catalog No	Price
GasAlert Quattro, rechargeable, for %LEL, O ₂ , H ₂ S, CO		QT-XWHM-R-Y-NA	\$755.00
IR connectivity kit with Fleet Manager II software		GA-USB1-IR	80.00
Accessories	SamplerPak motorized sampling pack kit	GA-SPAK	OBS
	Spare rechargeable battery pack	QT-BAT-R01	95.00
	Replacement power adapter	GA-PA-1-NA	15.00
	Five-unit power adapter	GA-PA-1-MC5-NA	100.00
	Five-unit cradle charger	QT-C01-MC5	250.00
SureCell Replacement Sensors	Quad sensor screens, 2-pack	QT-SS	15.00
	Quad sensor screens, 10-pack	QT-SS-K1	75.00
	Combustible sensor (0-100% LEL)	SR-W04-75C	170.00
	Oxygen sensor (0-30.0% O ₂)	SR-X10-C1	165.00
	Carbon monoxide sensor (0-1000 ppm CO)	SR-M04-SC	225.00
	Hydrogen sulfide sensor (0-200 ppm H ₂ S)	SR-H04-SC	140.00
Replacement screw kit (40 screws)		QT-SCREW-K1	10.00

RAECO Rents
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GasAlert Micro5 Portable Five-Gas Monitor with PID

- Simultaneously displays measured concentrations of oxygen, combustibles, and toxic gases
- Available with electrochemical cells, catalytic bead sensors, PID for volatile organic compounds, and NDIR for CO2 monitoring
- Pre-calibrated sensor cartridges detect H2S, CO, O2, SO2, PH3, NH3, NO2, HCN, Cl2, ClO2, combustibles (0–100% LEL or 0–5.0% volume methane), VOCs (PID), CO2 (IR); Patented SureCell™ toxic sensors
- Built-in correction factors for LEL and PID
- Four alarm levels: Low, high, TWA, and STEL; Internal 95 dB audible alarm, internal vibrating alarm for high noise areas, and four bright wide-angled alarm bars
- Rugged, impact-resistant housing, waterproof to IP67
- Full function self-test of sensor and circuit integrity, battery status, and audible/visual alarms on startup; Compatible with MicroDock II calibration and bump test systems (not for ClO2 or O3)
- Datalogging stores several months of continuous data



Common Sensor Ranges

Sensor	Range	Resolution	Model
CO	0–500 ppm	1.0 ppm	5, 5IR, 5PID
O2	0–30.0%	0.1%	5, 5IR, 5PID
H2S	0–500 ppm	1.0 ppm	5, 5IR, 5PID
%LEL	0–100% LEL (0–5.0% v/v)	1% (0.1%)	5, 5IR, 5PID
CO2	0–50,000 ppm (0–5.0% v/v)	50 ppm (0.01%)	5IR
NH3	0–100 ppm	1.0 ppm	5
SO2	0–150 ppm	1.0 ppm	5
VOCs	0–1000 ppm	1 ppm	5PID

Models and Accessories for Sale

Description	Catalog No	Price
GasAlert Micro5 datalogging detector, yellow case, rechargeable lithium polymer battery		
Gases	%LEL, O2, H2S, CO, SO2 CO2 (IR), %LEL, O2, H2S, CO	M5-XWSY-R-D-D-Y-N-00 \$1450.00 M5IR-XWBY-R-D-D-Y-N-00 1980.00
Pump version GasAlert Micro5 datalogging detector, yellow case, with rechargeable lithium polymer battery		
Gases	%LEL, O2, H2S, CO, SO2 VOCs, %LEL, O2, H2S, CO CO2 (IR), %LEL, O2, H2S, CO	M5-XWSY-R-P-D-Y-N-00 1575.00 M5PID-XWQY-R-P-D-Y-N-00 1895.00 M5IR-XWBY-R-P-D-Y-N-00 2105.00
Replacement Sensors	H2S sensor CO sensor SO2 sensor TwinTox (CO and H2S) sensor O2 sensor %LEL combustible sensor, filter CO2 (IR) sensor VOC PID sensor, 10.6 eV	PS-RH04S 225.00 SR-M04-SC 225.00 PS-RS04 350.00 D4-RHM04 350.00 SR-X10-C1 165.00 SR-W04 170.00 SR-B04 1000.00 SR-Q07 850.00
Accessories	GasAlert Micro5 confined space kit 10.6 eV PID lamp for VOC sensor Cleaning kit for PID sensor Rechargeable battery pack Quad sensor screen filters, pack of 2	M5-CK-DL 350.00 RL-PID10.6 240.00 M5PID-CLK-K1 35.00 M5-BAT08 150.00 M5-SS 20.00

Detector comes with specified sensors, sensor compartment cover for diffusion operation, calibration adapter and hose, integral concussion-proof boot, lithium polymer battery pack, slip-in charger cradle with wall adapter, interactive training and technical documentation CD, quick reference guide.

Confined space kit includes carrying holster, sampling probe with hose, calibration hose with quick-connect fitting, 0.5 LPM regulator, foam-lined carrying case with space for M5 and cal gas. Detector and calibration gas cylinder sold separately.



Buy Now!



PIDs and FIDs for Rapid VOC Detection

PhoCheck Tiger Photoionization Detector (PID) for VOCs



- Wide dynamic range ppb to 20,000 ppm for specific volatiles
- Accuracy to $\pm 5\%$ display reading ± 1 digit
- LED, vibratory, and audible alarms — pre-programmed time-weighted average (TWA) and short-term exposure limits (STEL) for 450 different gases
- Logs > 120,000 date-time-stamped data points, 33 hours at one log per minute
- Intrinsically safe ATEX, IECEx, and cUL approvals

**Buy
Now!**

Models and Accessories for Sale

Description	Catalog No	Price
PhoCheck Tiger PID with 10.6 eV lamp	PTXSLBME-0000	\$3895.00
Accessories	PID lamp cleaning kit	A-31063 25.00
	Lithium ion rechargeable battery pack	A-861240 339.00
	MiniPID lamp, Krypton, 10.6 eV	LA4TM600 146.00
	MiniPID lamp, Argon, 11.7 eV	LA4SM700 357.00



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week, or month.
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Includes Detector, PID lamp and cleaning kit, rechargeable battery, charger and power adapter, rubber boot, explorer case, USB memory stick with software, carbon zero filter assembly, PTFE filter disc, MiniPID stack removal tool, 60mm probe tube, lanyard, USB cable, and user manual.

PhoCheck Tiger Select Benzene/Total Aromatic Compound Detector



- Fast to detect total aromatic compounds to 20,000 ppm gas-dependent
- Detects benzene in other compounds with selective benzene pre-filter tube (0–40 ppm); Detects benzene without tubes in areas of benzene gas only
- Accuracy to $\pm 10\%$ display reading ± 1 digit
- LED, vibratory, and audible alarms — plus 15-minute STEL and 8-hour TWA
- Logs > 120,000 date-time-stamped data points, 33 hours at one log per minute
- Intrinsically safe ATEX, IECEx, and cUL approvals

**Buy
Now!**

Models and Accessories for Sale

Description	Catalog No	Price
Tiger Select basic instrument	PTXSLBME-0512	\$5043.00
Tiger Select instrument with datalogging	PTXSLBME-0516	5822.00
Accessories	PID lamp cleaning kit	A-31063 25.00
	Lithium ion rechargeable battery pack	A-861240 339.00
	MiniPID lamp, Krypton, 10.6 eV	LA4TM600 146.00
	MiniPID lamp, Argon, 11.7 eV	LA4SM700 357.00

Includes Detector, PID lamp, battery, battery charger and power adapter, rubber boot, explorer case, USB memory stick with software, Draeger benzene pre-filter tubes, pellet pack PPB, Draeger Benzene pre-filter tube opener, carbon zero filter assembly, PTFE filter disc, MiniPID stack removal tool, lanyard, PID lamp cleaning kit, coated sensor seal, Tiger Select calibration connector and calibration adapter, o-ring, electrode stack, USB cable, quick-start guide and user manual.



Need continuous VOC monitoring? Get the Ion Science TVOC.

Prices start at \$2960.00

Cub Personal PID for Volatile Organic and Total Aromatic Compounds



**Buy
Now!**

- Measures 480 selectable VOC and TAC compounds, benzene selective
- Detects gases in 1 ppb to 50,000 ppm ranges
- Less than 13 second response to hazardous gases and vapors
- Clear audio, visual, and vibrating alarms

Models and Accessories for Sale

Description	Catalog No	Price
Cub personal photoionization detector, PPM range	TCPSXCXX-X	\$1363.00
Cub personal photoionization detector, PPB range	TCBSXCXX-X	1678.00
Cub personal PID, total aromatic compounds	TCTSXCXX-X	1681.00
Accessories	PID lamp cleaning kit	A-31063 25.00
	MiniPID lamp, Krypton, 10.6 eV	LA4TM600 146.00
	Belt clip kit	A-871019 24.00

Includes Detector, docking station, remote calibration adapter, accessory kit, stack removal tool, power cable, USB cable, quick start guide, and calibration certificate.



What gases can the FTIR gas analyzer measure?

The Gasmet™ FTIR gas analyzer can measure any gas except the following: Noble (or Inert) gases; Homonuclear diatomic gases (N₂, Cl₂, H₂, F₂, etc.); H₂S

Gasmet DX4040 Portable Ambient Air FTIR Gas Analyzer

FTIR analyzer now available from RAECO!

- Real time measurement and display multiple gases to sub-PPM detection limits
- Single-button unknown gas identification in the field using a tablet PC
- Uses a spectral library of >5000 compounds to identify gases and warn for false positives
- Automatically compensates for cross interferences in the analysis
- No sample preparation required, no consumable parts to replace
- No span calibrations required, only periodic zeros using nitrogen or clean air
- Saves all sample spectra for analysis, logs GPS data with gas measurements
- Wireless communication (Bluetooth, WiFi, 3G)

The Gasmet DX4040 portable FTIR gas analyzer detects organic and inorganic gaseous compounds in real time by their absorbance of infrared radiation. Because each molecular structure has a unique combination of atoms, each produces a unique infrared spectrum. From this, it's possible to identify (qualitative analysis) and analyze (quantitative measurement) the compound. An FTIR analyzer simultaneously measures multiple analytes in a complex gas matrix, detecting virtually all gas-phase species.

Gasmet FTIR gas analyzers offer greatest benefits when you need to analyze several components at once, analyze the gas hot/wet (hot/humid applications for HCN, NH₃ or HCl), or analyze any gas in complicated gas mixtures. The DX4040 is ideal for applications including chemical spill, security, forensic investigation, occupational health, anaesthetic gases, greenhouse gases, refrigerants, leak detection, VOCs, and research.

Models and Accessories for Sale

Description	Catalog No	Price
FTIR portable multigas analyzer	DX-4040	\$43603.00
Choose a Gas App Library		
20 user-selectable gases	GAS-LIB-402	0.00
25 toxic industrial compounds	GAS-LIB-404	3163.00
25 common hospital gas compounds	GAS-LIB-405	15171.00
Accessories		
NIST 5000+ gas library (Requires Calcmeter Pro)	GAS-LIB-409	3820.00
Calcmeter 4040 Pro software and HASP key	GAS-SW-405	10928.00
DX-4040 spare lithium ion battery	GAS-OPT-401	1475.00
Tabletop battery charger/tester	GAS-OPT-402	1534.00
DX4040 pelican transport case	GAS-OPT-405	1380.00

Ships with MCPT detector, NAUTIX7 PDA with Calcmeter Lite v2.0 software, Li-ion rechargeable battery, internal sample pump, 20' Tygon sample line, probe with particulate filter, back-carry harness, 25-gas library (presets to 0-2000 ppm CO₂, 0-100 ppm CH₄, N₂O, and CO, 0-3%v/v H₂O).

Buy Now!



MicroFID II Advanced Portable Flame Ionization Detector

- Detects from 0.1 to 50000 ppm volatile organic compounds
- 70-hour hydrogen supply, 15-hour battery life
- Audible and visual alarms
- Compatible with handheld PDA for viewing detection data; Built-in Bluetooth wireless interface
- Intrinsically safe for Class I, Div 1, Groups A-D hazardous areas

Looking for a fixed FID gas analyzer? Call RAECO.

Models and Accessories for Sale

Description	Catalog No	Price
MicroFID II flame ionization detector	A1201060	\$11495.00
Accessories		
Extension probe, bracket, and carrying strap	MX396033	564.08
Hard-side carrying case with foam inserts	A1201225	512.33
Juniper Archer PDA (Class 1/Div 2 approved)	40080007	2995.00
FirstFID software (Windows Mobile 6 or newer)	SW201100	305.33
Fluoropore water/particulate filter, 25-pack	MX396015	113.85
Charcoal filters for zero calibration, 10-pack	MX396022	310.50
Coalescing filters for moisture, 5-pack	MX396060	170.78
Replacement 70L Hydrogen fuel cylinder	61300001	1029.83

Ships with Bluetooth communication, 70L hydrogen cylinder, 15-hour rechargeable battery pack, universal battery charger, 25 Fluoropore membrane filters, and user manual.

Buy Now!



Portable Combustion Efficiency Analyzers



**Optional
probes
extend 320's
functionality**

Testo Residential/Commercial Combustion Analyzers

Testo 310

- For residential furnace, boiler, and water heater applications
- O₂, CO (w/ NO_x filters standard), CO₂
- Draft and pressure
- Flue and ambient temperature
- Combustion efficiency and excess air
- Undiluted CO (CO air-free) and ambient CO
- Easy-to-read backlit display

Add a printer to either model for easy on-site reporting

Testo 320

- For testing and tuning all types of boilers, heater or furnaces
- O₂, CO, CO₂, ambient/room CO, CO air-free
- CO sensors with NO_x filter, 0–4000 ppm range
- Flue draft, pressure (vent or duct or switches)
- Flue and room temperature
- Combustion efficiency and excess air
- Flue gas matrix with four user-defined combustion types
- Oil flow and gas clock BTU calculator
- Datalogs 500 readings plus customer site ID

Models and Accessories for Sale

Description	Catalog No	Price
310 residential analyzer kit (O ₂ , CO)	0563 3100	\$695.00
310 residential analyzer kit with printer	0563 3110	895.00
320 residential/commercial analyzer kit (O ₂ , CO)	0563 3220 70	1195.00
320 residential/commercial analyzer kit with printer	0563 3220 71	1460.00
Particle filters, 10-pack	0554 0040	39.00
Standard smoke pump test kit (scale, filter paper, lubricant)	0554 0307	189.00
Thermal printer paper, 10-year legibility, 6 rolls	0554 0568	30.00
320 series replacement O ₂ sensor (0–21.0 vol%)	0393 0003	93.00
320 series replacement CO sensor (0–4000 ppm)	0393 0053	176.00

310 includes analyzer, probe/hose, silicon tubing, 5 extra particulate filters and pressure plugs, AC power supply/USB charger, calibration certificate and carrying case.

320 includes analyzer, probe/hose, silicon tubing, 10 extra particulate filters, AC power supply/USB charger, calibration certificate and carrying case.

Printer kits add infrared printer and six rolls of thermal paper.

**Buy
Now!**



**Buy
Now!**

Testo 330-2G LL Combustion Analyzer with Graphical Display

- For gas pipe testing, pressure drop, pipe commissioning, and more
- Graphics let you know when combustion parameters are out of range
- Long life sensors for O₂, CO, and NO, with automatic over-range protection
- Calculates CO₂, efficiency, excess air, CO air free
- Zeroing feature lets you start the analyzer with probe in flue instrument
- Diagnostics and quick leak check at the touch of a button
- On-board memory stores a half-million measurements
- 20 selectable fuels, including ten user-defined fuels
- Differential pressure, differential temperature and gas leak detection (with optional probes)

Models and Accessories for Sale

Description	Catalog No	Price
330-2G LL Combustion Kit #1 (CO, O ₂)	0563 3372 71	\$2690.00
330-2G LL Combustion/NO _x Kit (CO, O ₂ , NO)	400563 3372	3595.00
Fast infrared printer	0554 0549	370.00
EasyHeat PC software	0554 3332	215.00
USB cable (USB-A to mini-B)	0449 0047	27.00
Refill thermal printer paper, 6 rolls	0554 0568	30.00
Combustion air temperature probe	0600 9797	172.00
NO sensor upgrade module (0–3000 ppm)	0554 2151	995.00
Replacement O ₂ LL long life sensor	0393 0002	265.00
Replacement CO LL long life sensor	0393 0101	495.00
Replacement NO LL long life sensor	0393 0151	480.00

Kits include analyzer, sensors, 12" flue gas probe, lithium ion battery, power supply/charger, 10-pack of particle filters, standard case.



Due to contract restrictions, Testo instruments are only available for sale within our Midwest regional territory (though parts are available for unrestricted sale). They can be rented anywhere within the US.

Testo 340 Portable Combustion Tuning Analyzer



- Four-gas flexibility in a rugged, compact handheld design
- Automatic sensor protection keeps your analyzer working longer
- Flexible plug and play sensors swap in and out easily in the field
- Replaceable interference filters for CO and NO sensors increase accuracy and extend sensor lifetime
- Optional "dilution overall" extends the range of all sensors (50000 ppm CO, 15000 ppm NO, 25000 ppm SO2)
- Standard probes designed for engine or burner/boiler applications plus industrial probes (good to 3200° F) for extreme tuning flexibility
- Easy-to-use interface — Clear backlit display, simple function keys, information buttons to display functions, sensor diagnostics, and more
- Automatic flow controlled sampling pump
- 18 standard fuels plus 10 software-enabled user-defined fuels
- Measures O2, CO, NO, NO2, SO2, temperature, draft, differential and absolute pressure
- Calculates CO2, efficiency, flue gas loss, and flue gas dewpoint
- Low range CO and NO sensors available for critical measurements
- Prints records to Testo infrared printer (10-year thermal paper)
- Huge datalogging capacity: 100 folders, 10 sites per folder, 200 logs per site
- Compatible with Testo easyEmission software for data management, analysis, and report generation



Models and Accessories for Sale

Description	Catalog No	Price
340 emission analyzer standard kit (O2, CO)	400563 3341	\$3099.00
340 emission analyzer burner tuning kit (O2, CO, NO, printer)	400563 3342	4250.00
340 emission analyzer engine tuning kit (O2, CO, NO)	400563 3343	4675.00
340 O2 upgrade kit (Add at least one upgrade module)	400563 3344	1865.00
CO upgrade module (0–10000 ppm, H2 compensated)	0554 2100	1395.00
CO low upgrade module (0–500 ppm, H2 compensated)	0554 2102	1395.00
NO upgrade module (0–3000 ppm, 1 ppm resolution)	0554 2150	1395.00
NO low upgrade module (0–300 ppm, 0.1 ppm resolution)	0554 2152	1395.00
NO2 upgrade module (0–500 ppm, 0.1 ppm resolution)	0554 2200	1395.00
SO2 upgrade module (0–5000 ppm, 1 ppm resolution)	0554 2250	1395.00
O2 replacement sensor	0393 0001	205.00
CO replacement sensor	0393 0100	595.00
CO low replacement sensor	0393 0102	575.00
NO2 replacement sensor	0393 0200	575.00
13" probe, 5/16" diameter, 7" Teflon-lined hose	0600 8764	795.00
28" probe, 5/16" diameter, 7" Teflon-lined hose	0600 8765	995.00
10-pack particle filters for engine probe	0554 3371	62.00
10-pack particle filters, disk type for standard handle	0554 3385	31.00
Replacement lithium ion rechargeable battery	0554 1103	68.00
EasyEmission PC software with USB cable	0554 3334	399.00

**Buy
Now!**

Due to contract restrictions, Testo instruments are only available for sale within our Midwest regional territory (though parts are available for unrestricted sale). They can be rented anywhere within the US.

340 standard kit includes analyzer with O2, CO sensor, power supply/charger, 10-pack probe filters, 12" probe with 7" Teflon hose, transport case, and documentation.

340 burner tuning kit includes analyzer with O2, CO and NO sensors, fast IR printer and six rolls of paper, power supply/charger, 10-pack probe filters, 12" probe with 7" Teflon hose, transport case, and documentation.

340 engine tuning kit includes analyzer with O2, CO and NO sensors, 2X overall dilution (for all gases), power supply/charger, 10-pack probe filters, engine probe with inline filter and water trap, filter removal tool, transport case, and documentation.

340 upgrade kit includes analyzer with O2, power supply/charger, 10-pack probe filters, transport case, and documentation. Add upgrade modules as required for your application.



350 Portable Combustion Efficiency Analyzer



Features

- Test up to six gases simultaneously, or swap sensors out for additional parameters (NO_{low}, CO_{low}, SO₂, H₂s, Co₂, CxHy)
- Innovative dilution systems for the widest testing ranges and greatest sensor protection (CO to 400,000 ppm, SO, NO₂, SO₂, H₂S to five times the sensor range)
- Advanced sample conditioning uses a thermoelectric chiller for moisture drop-out and a peristaltic hose pump for controlled water removal
- Proven sample gas path with Teflon-lined hoses
- Continuous temperature compensation for assured accuracy
- Flow rate and sensor temperature monitoring for US EPA CTM-030, 034, and ASTM D6522 requirements
- User-defined programs with onboard memory to 250,000 values
- Integrated pressure measurement for draft, differential pressure, velocity, and mass emission
- Comprehensive calculations including O₂ corrections for NO_x, CO, and SO₂, mass measurement with pitot and stack dimension output
- User-defined O₂ references for US EPA and state reporting



Emissions testing relies on proper hardware, coupled with accurate measurements. It's critical how the sensors are integrated, flow rate is controlled, and exhaust gas is conditioned. The Testo 350 takes care of all these critical items, and provides the high performance and rugged portability you require.

The unit's rugged housing, bump protection, and industrial connectors let it stand up to any field condition. Ready to start? Just click the application icon, and the analyzer automatically begins its setup process. The proper parameters, correct calculations, and real diagnostics are displayed in full HD color. These features, coupled with the intelligent automatic datalogging and testing programs, makes emission testing easier than ever before.

The new flow-controlled pump and gas paths, built with non-reactive materials) sets a new standard in sampling. No need to fumble with valves and flow meters. The 350 automatically corrects for positive and negative pressures. Smart diagnostics provide more information, and explain steps to correct the situation.

350 Control Unit — Small Size, Huge Capacity

- Measurement interface provides access to field configurations, so testing is faster to set up and easier to perform
- Use the control unit for data storage, and download at your convenience
- Use the fresh air button to purge instead of climbing a ladder to pull the probe
- With remote control, increase accuracy by eliminating long sample lines and long response times
- Click the controller unit face down into the analyzer box for protection and added security
- Includes integrated magnets for mounting to steel surfaces

HD Color Display for Viewing Combustion Data

- Real-time color graphics
- Intuitive operation lets you view collected data in a graph or numeric values
- See the measurements at the control panel via a cabled connection, or up to 300 feet away using Bluetooth

350 Analyzer Box — Where Measurement Begins

- Contains the pumps, sample conditioning, electronics, and up to six sensors
- Sensor temperature monitoring and compensation complement each other for increased accuracy
- Thermoelectric (Peltier) chiller conditions the gas as required by regulatory agencies
- Foam rubber bumpers and components mounted in shock-resistant material help protect the device from field use

Built for Serviceability

- Separate sensor chamber ensures thermal stability and the highest accuracy. Minimizes temperature drift due to thermal changes from other electronics or ambient conditions, and maximizes measurement
- Easy-access panels allow for quick servicing
- New digital plug-and-play sensor platform provides easy swapping and sensor change-outs. Field replaceable in seconds and no calibration needed, the sensor electronics maintain the calibration and other critical data. Quick change interference filters assure the highest accuracy
- Fresh air and dilution pump draws fresh air in for purging sensors
- Cooling loop enhances thermal control and analyzer efficiencies, and is designed to isolate the electronics and sensors from harsh ambient conditions, so you can test in dirty locations with confidence
- Automatic flow control and high capacity sampling pump gives you more power to maintain constant flow. The pump will maintain flow rate for best sensor response and accuracy

Designed for EPA combustion engine testing

- Pre- and post-catalyst testing of exhaust gases, linking two analyzers for simultaneous testing, and easyEmissions software for data management and reporting makes the 350 ideal for testing to EPA NESHAP 40 CFR sub ZZZZ and NSPS sub JJJJ standards

Models and Accessories for Sale

■=Standard Kit Item (No added charge) (Add ♦ and ○ as Separate Line Items)
♦=No-Cost Option ○=Upgrade and Add to Total Price

**Buy
Now!**

Description	Catalog Number				Price
350 Boiler and Burner Kit	400563 3512	↓			\$9995.00
350 Engine Testing Kit	400563 3513		↓		10995.00
350 Turbine Testing Kit	400563 3514			↓	11800.00
Component Description	Option Part Number				Price Adder
13" Sampling Probe, 7' Hose (932° F Max.)	0600 9766	■	○	○	498.00
13" Engine Probe, 7' hose (1832° F Max)	0600 8764	○	■	■	795.00
9' Hose Extension (Max Allowable 25')	0554 1202	○	○	○	310.00
Maximum Number of Sensors Allowable		6	6	6	
O2 (0-25%)	0393 0000	■	■	■	217.00
CO (0-10000 ppm)	0554 2104	■	■	○	1395.00
CO low (0-500 ppm)	0554 2102			■	1395.00
CO2 NDIR (0-50%)	0554 2400	○	○	○	3323.00
H2S (0-300 ppm)	0554 2350	○	○	○	1763.00
NO (0-3000 ppm)	0554 2150	■	■	○	1395.00
NO low (0-300 ppm)	0554 2152	○	○	■	1395.00
NO2 (0-500 ppm)	0554 2200	■	■	■	1395.00
SO2 (0-5000 ppm)	0554 2250	○	○	○	1395.00
CxHy (0-4% hydrocarbons)	0554 2300	○	○	○	1560.00
Dilution system upgrade	0554 3555	○	■	■	1695.00
6' Data Bus Cable	0449 0075	■	■	■	130.00
16' Data Bus Cable	0449 0076	○	○	○	201.00
39" Probe (2200° F), 13' Lined Hose	400600 7803	○	○	○	695.00
Bluetooth Fast Printer (300' Range)	0554 0553	○	○	○	598.00
Infrared Printer	0554 0549	○	○	○	370.00
Thermal Paper, 6 Rolls (10-Year Legibility)	0554 0568	○	○	○	30.00
Rugged Pelican Case with Foam Insertion	400516 3515	○	○	○	650.00
Replacement Sensor Modules					
O2 (0-25%)	0393 0000	○	○	○	217.00
CO (0-10000 ppm)	0393 0104	○	○	○	575.00
CO low (0-500 ppm)	0393 0102	○	○	○	575.00
CO2 (NDIR 0-50% vol%)	0393 0400	○	○	○	3242.00
H2S (0-300 ppm)	0393 0350	○	○	○	609.00
NO (0-3000 ppm)	0393 0150	○	○	○	575.00
NO low (0-300 ppm)	0393 0152	○	○	○	575.00
NO2 (0-500 ppm)	0393 0200	○	○	○	575.00
SO2 (0-5000 ppm)	0393 0250	○	○	○	575.00
CxHy (0-4% hydrocarbons)	0393 0300	○	○	○	596.00

All systems include: Control unit and analyzer box, Bluetooth 2.0 communications, internal memory to 250,000 readings, advanced sensor temperature compensation, multiple temperature measurement (stack, sensor, ambient), sample flow rate monitoring (EPA compliant), auto CO overrange protection, thermoelectric sample conditioner with condensate removal pump, fresh air valve for automatic programs and long-term testing, differential pressure measurement, USB connection, AC power cable, extra particle filters, 6' data bus communications cable, easyEmissions software, standard carrying case, and calibration certificate.



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EASYEMISSIONS Data Management Software

- Real time analyzer control through your PC, showing tabular, graphical, and picture box results
- User-defined oxygen reference levels
- Calculates maximum, minimum, and mean values
- Logging intervals once per second to once per hour
- Custom formulas for specific report calculations
- Quick data transfer to Microsoft® Excel® or Adobe® PDF
- Included with Testo 350 kit purchases





Heat Stress Monitors



NOT intrinsically safe.

QUESTemp Portable Heat Stress Monitors

- Heat stress monitor with integral RH sensor for quick, accurate indoor or outdoor WBGT index values
- Multiparameter sensor for accumulations of temperature, humidity and air velocity data needed to calculate thermal comfort indices
- Protect against exertion heat illness
- Datalogging intervals of 1, 2, 5, 10, 15, 30, or 60 minutes; Time and data stamping with clock and calendar function
- Displays stay times for ACHIG, TLV, US Navy PHEL charts, US Marine Corps flag system, EPRI action limits
- Ensures safe work time with real-time guidance on work/rest regimens
- Meets ISO requirements for head, torso, and ankle measurements (with tri-sensor assembly)

Feature	QT-32	QT-34	QT-36	QT-44	QT-46	QT-48N
Dry bulb temperature sensor	•	•	•	•	•	•
Wet bulb temperature sensor	•	•	•			
Waterless wet bulb (humidity sensor)				•	•	•
Globe temperature sensor	•	•	•	•	•	•
Relative humidity sensor	•	•	•	•	•	•
WBGT indoor index	•	•	•	•	•	
WBGT outdoor index	•	•	•	•	•	•
Heat index/HUMIDEX	•	•	•	•	•	
Datalogging, time/date stamping		•	•	•	•	•
UL/CSA Intrinsically Safe	•	•	•			
Air velocity probe			Opt.		Opt.	

Models and Accessories for Sale

Description	Catalog No	Price
QUESTemp 32 with 2" globe sensor	QT-32	\$1667.00
QUESTemp 34 with 2" globe sensor	QT-34	2807.00
QUESTemp 36 with 2" globe sensor	QT-36	3075.00
QUESTemp 44, humidity sensor, and 2" globe sensor	QT-44	2925.00
QUESTemp 46, humidity sensor, and 2" globe sensor	QT-46	3194.00
QUESTemp 48N with replaceable rH sensor, 2" globe sensor	QT-48N	3349.00
Air Probe-9 air flow sensor for velocity measurements	AIRPROBE-120	1790.00
NiMH battery and 120 VAC charger for QUESTemp monitors	QT-NMH-120	219.00

Kit includes monitor unit, 9V Alkaline battery, water bottle, serial interface cable, sensor bar containing wet bulb (WB), dry bulb (DB), 2" globe temperature (GT), and humidity (%RH) sensors, calibration verification module, user manual, quick start guide.

Air Probe-9 kit includes flow sensor, two NiMH batteries, 120 VAC dual charger and storage case.

Buy Now!

QUESTemp II Personal Heat Stress Monitor



- Detects a worker's individual physiological response to prolonged heat exposure, measures and records core body temperature
- Temperature sensor measures 89.6° to 104° F with $\pm 0.2^\circ$ F accuracy
- Minute-by-minute datalogging for documentation of personal heat exposure, including time stamp, detailed time history data, and overall summary data
- UL/CSA approved intrinsically safe for use in potentially hazardous areas
- User-selected alarm trip points give audio alert at elevated core temperatures

Models and Accessories for Sale

Description	Catalog No	Price
Intrinsically safe personal heat stress monitor kit	QT-II	\$1947.00

Buy Now!

Rent by the day, week, or month. See page 579.

Ships with monitor, cable for ear sensor, thermoplastic ear-mold with speaker assembly, 10 replacement expandable foam ear plugs, digital oral thermometer, 10 disposable thermometer sheaths, serial cable, and storage case.

FIXED GAS DETECTION & MONITORING

V 04.2015

RAECO

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Products in this catalog are available to rent anywhere in the US. Due to representative agreements with our manufacturer partners, not all products are available for sale in all areas and markets. Prices are current at publication, and are subject to change without notice.

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Ordering Calibration Gases

Because of their classification as hazardous materials, calibration gases are not included with any of our instruments. You can contact RAECO to order them separately. Please note that all calibration gas orders will be subject to handling charges and HazMat shipping fees, and will ship to you directly from the manufacturer.

RAECO

Rents

RAECO rents portable gas monitors

Looking for a portable single-gas or multigas monitor to use for a short-term project? RAECO rents portable gas detectors on a daily, weekly, or monthly basis.

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Portable Instruments
Safety

Fixed Instruments
Gas Detection/Monitoring

Fixed Instruments
Analytics

Flow

RAECO Rents

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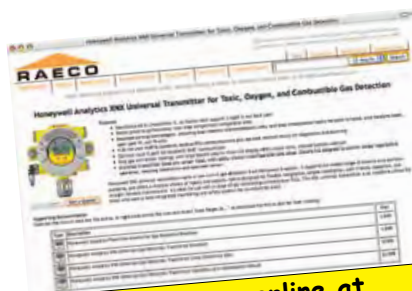
Sales: 800-852-9795
Rentals: 866-RENT-EHS
Fax: 815-464-8720


XNX Universal Gas Detection Transmitter



Features

- Robust and reliable operation in harsh environments
- Universal detector unit supports mV (catalytic bead and IR cell), electrochemical cell and IR (point and open-path) gas detection
- 4-20 mA with HART® standard; Communication options include up to 3 relays, MODBUS® and FOUNDATION® H1 Fieldbus (pending); Optional local IS port for handheld HART configurator
- Large, backlit, easy-to-view LCD display offers multisensory indicators (visual icons, colored buttons, text) to display gas and sensor readings
- Self-test and fault indication features; Quick calibration



Learn more online at
www.Raeco.com/get/XNX.php

XNX is designed for flexible integration, simple installation, user friendly operation and straightforward maintenance. A powerful advanced communications module adds increased functionality and flexibility to a gas detection network. Standard HART communications, along with optional Modbus, Foundation Fieldbus or relays, interface with a PLC.

The XNX enclosure is available in a painted stainless steel or aluminum housing with a marine grade coating. Rugged mounting options provide ultimate installation flexibility. Sensor instrumentation can be attached locally to the transmitter or remotely with the appropriate accessories. Inside, customer and sensor connections to the unit are designed to protect against dangerous electrical misconnections. With pending approvals to UL, CSA and ATEX requirements for Hazardous Locations, and IP66/67 rating to protect against dirt/water ingress, the XNX serves the most demanding industrial environments.

Condensed Specifications

Enclosure: Painted aluminum or 316 stainless steel, five conduit/cable entries; NEMA 4X/IP65 rated

Interface: Backlit 2.5" tall LCD high resolution dot matrix display with discrete alarm and status indication; Reliable non-intrusive four-button interface with magnetic wand access. HART handheld with IS port optional

Display: Gas reading, gas name and engineering units, fault and alarm status, large numeric concentration or LEL display, bargraph showing current reading, setpoints and full scale; Fault/ alarm and operating status indication; Security settings allow multi-level operator access for setup, configuration and calibration; Event history stores time and date of all alarm, diagnostic, and configuration events

Output Signal: Standard HART over three-wire, 4-20 mA. Optional Form C and three 5A SPDT relays (two alarm, one fault); Modbus over RS-485 and Foundation Fieldbus (not available with relays)

Approvals: Hazardous Area: *UL:* Class I, Div 1, Groups B-D, Class 1, Zone 1, AEx d IIC T5; *CSA:* Class I, Div 1, Groups B-D, T5; Performance: UL 913, UL 1203, CSA 22.2 #152 pending; SIL 2

Honeywell XNX Series Gas Sensors and Ranges

Gas Type	Range
Acetylene IR	0-2.5%
Ammonia	0-100 ppm 0-1000 ppm
Arsine	0-2 ppm
Bromine	0-5 ppm
Carbon Dioxide IR	0-5000 ppm
Carbon Dioxide	0-2% 0-5%
Carbon Monoxide	0-100 ppm 0-500 ppm 0-1000 ppm
Chlorine	0-5 ppm 0-10 ppm 0-20 ppm

Gas Type	Range
Chlorine Dioxide	0-3 ppm
Diborane	0-50 ppm
Ethylene Oxide	0-10 ppm
Fluorine	0-5 ppm
Germane	0-3 ppm
Hydrogen	0-1000 ppm
Hydrogen Cyanide	0-50 ppm
Hydrogen Chloride	0-50 ppm
Hydrogen Fluoride	0-10 ppm
Hydrogen Sulfide	0-10 ppm 0-50 ppm 0-100 ppm 0-500 ppm

Gas Type	Range
Hydrogen Sulfide	Solid State
Nitric Oxide	0-100 ppm
Nitrogen Dioxide	0-10 ppm
Oxygen	0-10% 0-25%
Phosphine	0-2 ppm
Silane	0-25 ppm
Sulfur Dioxide	0-25 ppm 0-100 ppm

Gas Type	Range
Combustible Gases (0-100% LEL)	
Natural Gas & H2	
Petroleum Vapors	
Solvents	
IR for Methane	
IR for Propane	
ATEX 4.4% CH4, Natural Gas & H2	
ATEX 1.7% Propane Petroleum Vapors	
ATEX 1.7% Propane Solvents	
IR Methane, ATEX 4.4% CH4	
IR Non-Methane, ATEX 1.7% Propane	
Oxygen	
Solvent-Tolerant	
Solvent/CO2-Tolerant	
Low	
Low, Solvent-Tolerant	



A complete XNX model consists of the following:

- 1 An XNX transmitter base station
 - 2 Your choice of electrochemical cell, infrared, or mV sensors
- Start with your XNX-A model, and then add the necessary number of sensors as individual line items. **Example:** XNX-ATAE-RHNNN with one each XNXXSC1SS and XNXXSS1SS sensors.

XNX-AM

Agency Approval	Port Threads	Enclosure	Sensor	Interface Option	Local HART®	Sensor and Range
ATEX - A	M25 - M	Stainless - S	Electrochem - E	None - N	None - N	None - NNN
UL / CSA - U	3/4" NPT - T	Aluminum - A	Infrared - I	Relay - R	Local HART® - H	MPD-AM (Catalytic Bead %LEL) - CB1
INMETRO - B			milliVolt - V	Modbus® - M		MPD-AMF1 (R %LEL Flamm - IF1)
				Foundation™		MPD-AMV1 (R CH4 0-5% Vol - IV1)
				Fieldbus - F		MPD-AMIC1 (R CO 0-2% Vol - IC1)

Model Selection Guide

Description	Catalog Number	Availability	Price
UL Approved XNX Transmitter Base Station	XNX-A _ _ _ _	• • •	\$0.00
Enclosure	Aluminum, 3/4" NPT threads 316 Stainless steel, 3/4" NPT threads	_ TA _ _ TS _	• • • • • •
Sensor Type	Electrochemical cell Infrared (combustible gas) milliVolt	_ _ _ E- _ _ _ I- _ _ _ V-	↓ ↓ ↓
Output Interface	None Relay Modbus Foundation Fieldbus (pending)	N _ _ _ _ R _ _ _ _ M _ _ _ _ F _ _ _ _	• • • • • • • • • • • •
Local Interface	None Local HART® (requires handheld)	_ NNNN _ HNNN	• • • • • •
Spare Magnetic Wand/Screwdriver	1226-0254	• • •	8.00

If you picked sensor type E, select your electrochemical cell sensors below.

Description	Catalog Number	Availability	Price
Electrochemical cell (EC) toxic and oxygen sensors for XNX universal transmitter		↓	
Oxygen, 0-25% volume	XNXXSO1SS	•	\$400.00
Carbon Monoxide	XNXXSC1SS	•	400.00
Hydrogen Sulfide, 0-15/10-50 ppm	XNXXSH1SS	•	400.00
Hydrogen Sulfide, 0-100 ppm	XNXXSH2SS	•	400.00
Chlorine	XNXXSL1SS	•	500.00
Sulfur Dioxide, 0-15 ppm	XNXXSS1SS	•	500.00
Sulfur Dioxide, 0-50 ppm	XNXXSS2SS	•	500.00
Chlorine Dioxide	XNXXSX1SS	•	500.00
Hydrogen, 0-1000 ppm	XNXXSG1SS	•	500.00
Hydrogen, 0-10000 ppm	XNXXSG2SS	•	500.00
Phosphine	XNXXSP1SS	•	600.00

Replacement toxic and oxygen sensor cartridges for EC sensors

Oxygen, 0-25% volume	S3KO1SS	•	225.00
Carbon Monoxide	S3KC1SS	•	225.00
Hydrogen Sulfide, 0-15/10-50 ppm	S3KH1SS	•	225.00
Hydrogen Sulfide, 0-100 ppm	S3KH2SS	•	225.00
Chlorine	S3KL1SS	•	325.00
Sulfur Dioxide, 0-15 ppm	S3KS1SS	•	325.00
Chlorine Dioxide	S3KX1SS	•	325.00
Hydrogen, 0-1000 ppm	S3KG1SS	•	325.00
Hydrogen, 0-10000 ppm	S3KG2SS	•	325.00
Phosphine	S3KP1SS	•	400.00

Accessories for EC sensors

XNX Remote EC Sensor Mount Kit	S3KRMK	•	499.00
Calibration Gas Flow Adapter Kit	S3KCAL	•	60.00



HART® Handheld Communicator

Fast startup, long battery life on standard batteries. Holds hundreds of device files and configurations! Download new DOF and firmware updates from www.Meriam.com.

Communicator with 3-Year Device File Download Subscription

General Service HART Communicator..... MFC4150-01	\$4095.00
Intrinsically Safe HART Communicator..... MFC4150X-01	4310.00

If you picked sensor type I, select your infrared sensors below.

Description	Catalog Number	Availability	Price
UL Approved Optima Plus Infrared Combustible Gas Detection Sensors: Configured as current source output, standard with dust barrier, weather housing, and deluge/heat shade		↓	
Hydrocarbon calibration	Standard With remote gassing cell With remote gassing cell and flow housing	2108N4100N 2108N4110N 2108N5100N	• • • • • • •
Output	Add HART Output (Change N to H)		• 100.00
Ethylene calibration	Standard With remote gassing cell With remote gassing cell and flow housing	2108N4101 2108N4111 2108N5101	• • • • • • •
Additional Non-Standard Calibrations for Optima Plus IR Combustible Gas Detection Sensors (100% LEL Unless Specified)	Acetone Band A High IR Band B High IR Band C Medium IR Band D Low IR Benzene Butanone (MEK) Cyclohexane Cyclohexanone Di-Methyl Ether Ethyl Acetate Methane O-Xylene Propane Propane, 60% V/V Propylene P-Xylene Styrene Toluene	2108D3012 2108D3150 2108D3151 2108D3152 2108D3153 2108D3227 2108D3022 2108D3024 2108D3026 2108D3059 2108D3030 2108D3001 2108D3044 2108D3004 2108D3102 2108D3006 2108D3054 2108D3228 2108D3042	• •

Accessories for Optima Plus IR combustible gas sensors

Gassing Cover (for Calibration)	2108D0258	•	142.00
Calibration Cap	2108B0272	•	205.00
Universal Duct Mounting Kit	2442-0016	•	651.00

If you picked sensor type V, select your milliVolt sensors below.

Description	Catalog Number	Availability	Price
Replace -NNN in the XNX model number with the code below.		↓	
MPD-AM Catalytic Bead, %LEL	CB1	•	\$590.00
MPD-AMIF1 IR %LEL Flammable	IF1	•	800.00
MPD-AMIV1 IR CH4 0-5% Volume	IV1	•	800.00
MPD-AMIC1 R CO2 0-5% Volume	IC1	•	800.00

Replacement Cartridges for MPD Sensors

Catalytic Bead Cartridge, %LEL	1226A0359	•	300.00
IR Cartridge, %LEL Flammable	1226-0300	•	400.00
IR Cartridge, CH4 0-5% V/V	1226-0299	•	400.00
IR Cartridge, CO2 0-5% V/V	1226-0301	•	400.00

Accessories for milliVolt sensors

Gassing Cover (for Calibration)	2108D0258	•	142.00
Calibration Cap	2108B0272	•	205.00
Universal Duct Mounting Kit	2442-0016	•	651.00

Sensepoint XCD Gas Detection Transmitters



Features

- Common transmitter platform — One transmitter works with a variety of sensors, so you stock fewer spares and spend less time training operators
- SureCell® electrochemical sensors, Poison-immune infrared sensors; Poison-resistant catalytic bead sensors; Long life sensors
- IP66 Stainless steel or aluminium explosion-proof housing
- Three-color backlit LCD with digits, bargraph and icons
- Fully configurable via magnetic switches
- MODBUS communications for remote diagnostics/configuration, and multi-drop option for saving cable costs
- UL/CSA approved; Also available with INMETRO, ATEX, IECEx, KTL, PA, GB and CCCF approvals



Flashing Red = Alarm
Yellow = Fault or warning
Green = Normal operation

Honeywell

Honeywell's Sensepoint XCD transmitter provides comprehensive monitoring of flammable, toxic and oxygen gas hazards in potentially explosive atmospheres, indoors and outdoors.

The transmitter can auto-recognize any XCD-compatible installed sensor. The sensor plugs into the bottom of the transmitter, and the transmitter configures itself accordingly. You can modify detector operation via the LCD and magnet switches without ever opening the unit. This enables one-man, non-intrusive operation and reduces routine maintenance time and costs.

A tri-color backlit LCD clearly indicates the unit's status at a glance, even from a distance. A steady green backlight indicates normal operation, yellow indicates fault and red indicates an alarm.

All detectors are supplied pre-configured and include two programmable alarm relays, one programmable fault relay plus 4-20 mA output (sink or source selectable) and Modbus communications. The scale, range, relay operation, alarm setpoint and detector's electronic tag number can be adjusted in the field. Outputs are automatically inhibited during adjustment, reducing the risk of false alarm at the control panel during maintenance.

Condensed Specifications

Interface: Backlit color LCD display with alarm and status indication; Non-intrusive interface with magnetic wand access

Output: 4–20 mA current (source or sink), three 5A relays, configured normally open or normally closed and energized/de-energized; RS-485 Modbus

Detectable Gases

Gas Type	Span/Range	Default Range	Step	Acceptable Cal Gas
O ₂	25.0% Vol	—	—	20.9% Vol Fixed
H ₂ S	10.0–100.0 ppm	50 ppm	1 ppm	30–70% selected full scale range (typically 50%)
CO	100–1000 ppm	500 ppm	100 ppm	
H ₂	1000 ppm	—	—	
Methane CAT or IR	20.0–100% LEL	100% LEL	10% LEL	
CO ₂ IR	2.00% Vol	—	—	

Enclosure: IP66-rated epoxy-painted aluminum alloy or 316 stainless steel

Input Voltage: 16–32 VDC (24 VDC nominal)

Approvals: UL, cUL, CSA

Model Selection Guide

Description		Catalog Number	Price
UL/CSA Approved XCD Transmitter, 4-20 mA Output plus Three 5A Relays and Modbus RTU		SPXCDU_ _ _ _	\$0.00
Enclosure Material	Aluminum, 3/4" NPT Threads	LN _ _	0.00
	316 Stainless Steel, 3/4" NPT Threads	SN _ _	210.00
Sensor Type and Gas Selection	Oxygen, 25% Volume	_ _ O1	979.00
	Hydrogen Sulfide, 0-50 PPM	_ _ HX	979.00
	Carbon Monoxide, 0-500 PPM	_ _ CX	979.00
	Hydrogen, 0-1000 PPM	_ _ G1	979.00
	Flammable, CAT, 0-100% LEL	_ _ FX	874.00
	Flammable CH ₄ IR, 0-100% LEL	_ _ RX	1084.00
	Carbon Dioxide IR, 0-2% Volume	_ _ B1	1049.00
Replacement Cartridges	Oxygen	SPXCDXSO1SS	315.00
	Hydrogen Sulfide	SPXCDXSHXSS	315.00
	Carbon Monoxide	SPXCDXSCXSS	315.00
	Hydrogen	SPXCDXSG1SS	450.00
	Flammable CAT	SPXCDXSFXSS	285.00
	Flammable IR (Methane)	SPXCDXSRXSS	550.00
Accessories	Calibration Cap	S3KCAL	60.00
	Collecting Cone (for Light Gases)	SPXCDCC	60.00
	Mounting Bracket	SPXCDMTBR	55.00
	Sunshade/Deluge Protection	SPXCDSDP	220.00
	Printed User Manual, English	SPXCDHMANEN	30.00

HA20 and HA40 Multichannel Digital Gas Controllers



Features

- Accepts inputs from two or four 4-20 mA sensors transmitters
- Internal 24 VDC power supply provides 15 watts total system power (50 watt supply available)
- Three independent alarm levels per channel. Relay Acknowledge feature allows silencing of external audible devices during existing alarm conditions
- Two SPDT common alarm relays for HORN, HIGH, WARN or FAULT
- Graphic LCD readout displays monitored data as bargraphs, trends and engineering units. Alarm LEDs flash when new and become steady after acknowledged
- Touch and magnetic keypad for non-intrusive operation in potentially hazardous locations
- Optional Modbus slave RS-485 serial port, data logging, 4-20mA outputs, and discrete alarm relays
- CSA certified to C22.2 NO. 152 for combustible detection and Class I, Div. 2, Groups A-D, CE
- NEMA 4X (Div. 2 certified) and Explosion-Proof wall mount packaging options available

Honeywell digital gas controllers are designed to work in the harshest industrial or commercial environments to monitor for toxic gases, combustible gases, and oxygen deficiency. Honeywell HA20 and HA40 models provide simultaneous display and alarm functions for up to four sensor transmitters. Both can function as standalone devices or can be integrated into a fire and gas system.

HA20 and HA40 controller graphic LCD display shows monitored data as bargraphs, 30-minute trends, and engineering units. A touch-and-magnetic keypad allows for non-intrusive operation in potentially hazardous locations. Cal Mode offers pushbutton zero/span calibration for direct sensor interface applications. Authorization Mode lets you protect critical configuration variables from accidental changes.

The 4-20 mA inputs are ideal for interfacing to sensor transmitters mounted far away from the controller. Relay outputs allow control of beacons, horns and other alarm events. Three adjustable alarm levels are provided per channel. Two standard SPDT common alarm relays are for HORN, HIGH, WARN or FAULT alarm conditions.

Specifications

Display: 128 x 64 pixel graphic LCD with backlight displays, bar graphs, trends and engineering units

Alarm Relays: 5-amp, 30 VDC or 250 VAC resistive, Form C;
Common: Two standard; *Discrete:* Six optional

Analog Output: 10 bit. Max load 800Ω, nominal 24 VDC power

Power Requirement: 100-240 VAC / 24 VDC standard

Operating Temperature Range: -13° to 122° F

Housing: Wall mount; NEMA 4X/IP66 wall mount, Div 2; NEMA 7 explosion-proof, Div 1 & 2; NEMA 4X SS Enclosure, Div 2

Approvals: CSA C22.2 No. 1010.1 & ISA S82.02; UL 1604 / C22.2 No 213 (NEMA 4X: Div 2 Groups A-D, NEMA 7: Groups B-D); EN55011 & EN61000

Wireless Options: Optional HA40 900MHz wireless interface (10-2454) can be used to communicate with an HA71 master Modbus controller. An additional 900MHz wireless adapter is also required for the HA71 (10-0288).

Model Selection Guide

Description	Catalog Number	Availability	Price
Honeywell digital gas controller with six discrete relays, internal 50W power supply, two common relays			
Inputs and Enclosure			
Two 4-20 mA inputs, NEMA 4X enclosure	HA20PY	↓	\$1979.00
Four 4-20 mA inputs, NEMA 4X enclosure	HA40PY	↓	2356.00
Two 4-20 mA inputs, painted steel enclosure	HA20PCS	↓	2054.00
Four 4-20 mA inputs, painted steel enclosure	HA40PCS	↓	2431.00
Two 4-20 mA inputs, stainless steel enclosure	HA20SS	↓	3379.00
Four 4-20 mA inputs, stainless steel enclosure	HA40SS	↓	3756.00
I/O Options (Choose Up to 3)			
Dual 4-20 mA analog input	10-0221-2	•	100.00
Dual 4-20 mA analog output	10-0223	•	146.00
Combo bridge sensor/EC sensor input	10-0216	•	134.00
Dual bridge sensor input	10-0219	•	144.00
Quad 4-20 mA analog input	10-0221-4	•	112.00
Quad 4-20 mA analog output	10-0308	•	226.00
Quad bridge/Dual analog sensor input	10-0309	•	265.00
RS-232/RS-485 Modbus RTU interface	10-0253	•	218.00
Six 5-amp Form C relay option	10-0222	•	172.00
Accessories			
Div 2 red Xenon strobe light and mount	10-0284	• •	473.00
Div 2 amber Xenon strobe light and mount	10-0285	• •	473.00
100 dB piezo audible alarm	10-0337	• •	106.00
50W NEMA 4X Div 2 internal power supply	10-0315	• •	383.00
550VA/300W UPS/surge protector with power loss relay	10-0287	• •	983.00

Need control for more inputs? See pages 550 and 551 for 16-to-64 channel digital gas controllers.

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HA71 8-Channel or 16-Channel Digital Gas Controller

**Honeywell**

Features

- Accepts up to 16 inputs from numerous sensor types — analog or Modbus, allowing data retrieval via RS-485, for reduced wiring cost at installation
- Eight-channel display mode and option boards for economical configuration of systems requiring eight channels or fewer
- Cal Mode offers pushbutton zero/span calibration for direct sensor interface applications
- Graphic LCD displays monitored data as trends, bargraphs, and engineering units
- Standard type A SPDT common alarm relays for Horn, High, Warn, and Fault
- Three adjustable alarm levels per channel
- Relay Acknowledge feature silences external audible devices during existing alarm conditions
- HMI software monitors up to ten HA71 controllers simultaneously

Honeywell's HA71 controller delivers advanced value through simultaneous display and alarm functions for up to 16 input variables. In addition to the graphic LCD and three adjustable alarm levels per channel, relay outputs allow control of beacons, horns, and other alarm events. Horn relays can be set for steady or pulsing operation.

The HA71 is easy to configure and use. Measurement ranges in engineering units, adjustable alarm setpoints, dual serial interfaces, and other selectable features combine to let the HA71 satisfy the needs of many demanding applications. It is widely used for centralizing the display and alarm processing functions in critical multipoint monitoring applications, including monitoring of ambient gas detection, rotating machinery, tank levels, flow, temperature, and others.

HA71 options, such as discrete alarm relays per channel, 4–20 mA I/O, direct sensor input conditioning and others, are added by connecting appropriate eight-channel boards to the I2C expansion bus.

HA71's human machine interface software has the ability to monitor up to ten HA71 controllers simultaneously, displaying up to 160 points of detection. It provides complete data display and storage, with real-time channel data available in 24-hour or 15-minute trends, including historical alarm and maintenance data.

Condensed Specifications

Power Requirement: 10–30 VDC, 24 VDC nominal; 12 watts max

Analog Inputs: 12-bit, 4–20 mA into 100 ohms input impedance; Includes power supply terminals for each channel, for routing power to two-wire or three-wire transmitters

Serial Ports: Modbus RTU master and slave RS-485 half or full duplex ports equipped with Tx/Rx LEDs

Alarm Relays: 5 amp 30 VDC or 250 VAC resistive form C

Analog Outputs: 10-bit 4–20 mA; 800 ohm max load with nominal 24 VDC power supply

Display: 128 x 240 pixel backlit graphic LCD; Displays bargraphs, trends, and engineering units, 52 discrete LEDs indicate alarm status for three alarms per 16 channels and common relays

Operating Range: -13° to 140°F (-25° to 60°C)

Housing: NEMA 4X fiberglass enclosure; NEMA 7 explosion-proof wall mount model also available. Call for pricing

Approvals: CSA: C22.2 #1010.1, 152 for combustibles; ISA S82.02; UL: 1604/C22.2 #213, Div 2, Groups A-D; CE EN55011, EN61000

**Buy
Now!**

A complete HA71 model consists of the following:

- 1 An HA71 enclosure and base control unit. The enclosure can hold up to seven I/O cards in any combination.
- 2 A universal power supply, unless you are providing your own 24 VDC power source.
- 3 Your choice of input and output boards. If you choose more than three I/O cards, you must also order a 10-0180 expansion plate. If you choose more than seven I/O cards, you will also need a 10-0178 expansion enclosure, which holds up to eight option cards.

Model Selection Guide

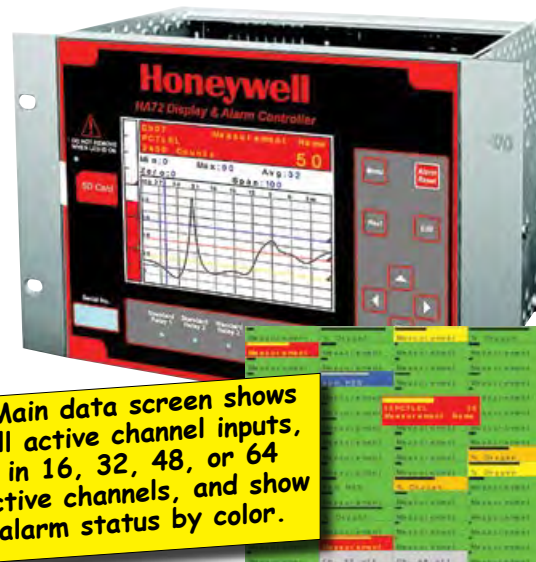
Description	Catalog Number	Price
8-Channel Digital Gas Controller, NEMA 4X Enclosure	HA71N4-8	\$5451.00
16-Channel Digital Gas Controller, NEMA 4X Enclosure	HA71N4-16	6573.00
Power	85-240 VAC Universal Input, 24 VDC Supply	10-0172 490.00
Input Cards (Max 16 Inputs)	Analog 8-Input Board with EXC Terminals	10-0158 330.00
	Catalytic Bead/LEL Sensor/mA Input Board	10-0191 413.00
	Dual Catalytic Bead/LEL Module	10-0192 200.00
	RTD/Resistive/4-20 mA 8-Input Board	10-0170 495.00
Output Cards	Form C Relay for ALM1, ALM2, Horn	10-0144 126.00
	8 4-20 mA Output Board	10-0167 330.00
	8 Form C 5 Amp Relays for Discrete Alarms	10-0195 366.00
Expansion Options	Expansion Plate (Adds 4 Card Positions)	10-0180 120.00
	Expansion Enclosure (Holds 8 Option Cards)	10-0178 525.00
Hardware Alarms	100 dB Piezo Audible Alarm on Enclosure	1000-1892 158.00
	Amber/Red Light with 80 dB Horn	1000-1906 750.00
Human-Machine Interface Software Package CD		HA-71-HMI 3276.00

**Need help building the HA71 model you need?
Call RAECO inside sales at 800-852-9795.**

HA72 Flexible Multichannel Digital Gas Controller

Features

- Accepts 16 to 64 inputs from many sensor types and signal ranges. Daisy chain up to 128 HA72 controllers to expand the system to meet your needs
- Custom software auto-recognizes and addresses Honeywell gas sensor transmitters (XNX™ and Sensepoint XCD)
- Connect sensors directly to HA72 with bridge sensor input board, saving installation time and eliminating need for extra devices
- Visual indicators (bargraphs, multi-color cells, flashing icons) and integrated alarm levels simplify and enhance monitoring, troubleshooting and trending
- Touch-and-magnetic keypad for non-intrusive operation in hazardous areas
- Enclosures for hazardous and non-classified areas : NEMA 4X, full/half 19" rack mount, NEMA 4X stainless steel, and NEMA 7 explosion-proof wall-mount
- SD card logs over one year of data including concentration levels, alarm events, min/max, calibrations and alarm resets
- Modbus master/slave functionality allows for simultaneous sending and receiving of data, through four RS-485 serial ports



The HA72 controller is a flexible, scalable gas controller that works the way you need it to. The HA72 puts you in control of mission-critical information and lets you share it across the enterprise via a secure, password-protected interface.

Know exactly what's happening with your gas monitors, at all times, from anywhere. An embedded web server provides interface and remote system configuration for the HA72. The Modbus TCP port lets you remotely configure and view the HA72 display via your Ethernet network.

View, Access, Share and Store Your Data Easily

You can upload/download system configuration via SD card, download the SD card onto additional HA72s for uniform configuration and to cut commissioning time across your safety system. Plus, you can log over one year of gas data for compliance and other safety reports and audits.

Main Data Screen: Displays ALL active channels on the same screen. Channel configurations include 16, 32, 48 and 64 active channels. Cells indicate alarm status by color. (See above right.)

Bargraph Screen: Displays 16 channels at a time. Side scroll bar controls which group of 16 channels are visible. Bar graphs change colors to indicate alarm status.

Zone Screen: Displays eight possible active zones. Alarm cells change colors and name field flashes indicating alarms. Simple interface lets you review which channels belong to each zone.



A complete HA72 model consists of the following:

- 1 An HA72 enclosure, base control unit. The HA72 comes standard with magnetic keypad, I/O interface board (two RS-485 ports, one Ethernet port, five relays), and a 2GB SD memory card.
- 2 A universal power supply, unless you are providing your own 24 VDC power source.
- 3 Your choice of input and output boards. If you choose more I/O cards than the base can support, order an expansion plate.

Model	Standard I/O Board Supported	I/O Boards Expanded Total with Plate	Expansion Plate
72-01	Two	Five	0010-0321
72-02	Four	Seven	0010-0321
72-04	Seven	Eleven	0010-1269
72-05	Seven	Eleven	0010-1269
72-07	One	—	—

Condensed Specifications

Display: QVGA 320 x 240 pixel backlit color graphic LCD; Discrete LEDs indicate alarm status for five standard alarm relays

Alarm Relays: 5 Amp 30 VDC or 250 VAC resistive Form C

Analog Inputs: 12 bit 4-20mA into 150Ω input impedance

Analog Output: 10 bit 4-20mA output; max load 800Ω with nominal 24 VDC power supply

Ethernet Port: Modbus TCP Master/Slave port

Serial Port: Modbus RTU, Master/Slave, RS-485 half or full duplex ports with Tx/Rx LEDs

Power Requirement: 10-30 VDC (24 VDC nominal) 12 Watts max

Approvals: Class I, Div. 2, Groups A-D; CSA-C22.2 No.152-M1984, CSA-C22.2 No. 213-M1987; ANSI/ISA-12.13.01-2000; UL Std No. 1604, Third Ed. – 1994; ANSI/ISA-12.12.01-2010

Need help building your HA72 controller? Call RAECO inside sales at 800-852-9795.

Model Selection Guide

Description	Catalog Number	Price
HA72 digital gas controller (32,48, or 64 channels), includes magnetic keypad		
Controller Enclosure	Panel mount rack controller	72-01 \$10320.00
	Controller in full 19" rack	72-02 11320.00
	NEMA 4X fiberglass enclosure	72-04 11640.00
	NEMA 4X 316 stainless steel enclosure	72-05 14240.00
	NEMA 4X compact non-metallic enclosure	72-07 11000.00
Power	85-240 VAC universal input, 24 VDC supply	10-0172 490.00
Inputs (Max 64)	I ² C analog 16 input board	10-0344 952.00
	I ² C bridge sensor/mA input board	10-0347 1120.00
	Dual bridge sensor module (req. 10-0347)	10-0192 200.00
Outputs	Auxiliary alarm relay board (+5 relays)	10-0332 312.00
	I ² C analog 16 output board	10-0344 952.00
	I ² C 16 discrete alarm relay board	10-0348 952.00
	I ² C 16 programmable alarm relay board	10-0350 1336.00
	RS-485 isolated expansion board (+2)	10-0368 512.00
Expansion Plates	Expansion plate (Adds 4 option cards)	0010-0321 280.00
	NEMA 4 expansion plate (Adds 5 cards)	0010-1269 312.00

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Proven Gas Detection and Control Applications

Low-Cost Oxygen Monitor for Lab Worker Safety



**Midas Gas Monitor
with Built-In
Web Server**

Application Toolkit

For help building an oxygen monitoring system like this one, please call 800-852-9795 and speak with your RAECO account manager.

Learn more about
Honeywell Analytics
fixed gas detection
instruments online at
www.RAECO.com

Application

- Pharmaceutical customer uses pure nitrogen in its lab for analytics and cold calibration, and needed a simple, low-cost oxygen monitoring system to ensure worker safety.
- Goals were (a) ease of installation, (b) ease of integration into the existing plant system, and (c) low maintenance.

Solution

- Customer installed the Midas oxygen sensor using Power over Ethernet, a single Ethernet connection providing all power, control and communications requirements. They monitored instrument status and alarm values via the website and used the internal relays on the Midas to drive local alarms, strobes and ventilation.
- Maintenance team opted to use Honeywell Analytics customer support program to reduce issues with sensor failure and disposal of worn sensors. Midas' auto-sensor diagnostics and LCD help keep lab workers and maintenance team informed.

Results

- System was installed and running in less than an hour
- Lab workers have easy access to key information through a standard web browser
- Pre-calibrated sensor and pump modules contribute to simple, low-cost maintenance

Honeywell Analytics Plug-N-Play Smart Sensors with Reflex® Technology

Honeywell pre-calibrated sensor modules are ready to use, right out of the box. These self-diagnosing sensors can be replaced in hazardous areas — with power applied — without the need for special tools. Imagine how much maintenance and downtime you'll save when you don't have to clear the area and stop production just to change a sensor!

Only Honeywell's patented Reflex technology adds an extra degree of precision and diligence to sensor monitoring to make doubly sure that people are kept safe. Reflex bounces electrical signals into the Midas electrochemical sensor at regular intervals, a form of electronic bump testing and continuous monitoring of sensor cell response.

Call RAECO to learn more.

Loop-Powered Intrinsically Safe Toxic and Oxygen Gas Detector

Features

- Proven plug-and-play factory-configured long life electrochemical sensors, patented Reflex® sensing element verification diagnostics
- Sensor recognition software automatically configures transmitter with plug-and-play factory configured sensors
- Uses SureCell™ electrochemical cells, ideal for hot and humid environments
- Explosion-proof transmitter allows field wiring to be run along with other non-IS instruments
- Configure without a Hot Work Permit using the LCD and magnetic switches
- Intrinsically safe sensor connection permits hot swap, reducing downtime and maintenance
- UL, cUL, ATEX, and IEC Ex approved

Honeywell's Series 3000 MkII transmitter provides comprehensive monitoring of toxic and oxygen gas hazards in potentially explosive atmospheres, both indoors and out. This gas detector operates on an industry standard two-wire 4-20 mA loop, making it ideal for both new and retrofit applications. You can configure the detector using the LCD and magnetic switches — no need for a hot work permit. Fault diagnostic software and programmable calibration frequency simplifies maintenance procedures.

A remote sensor mounting kit is available for mounting the sensor up to 50 feet from the transmitter, making it ideal for operation in areas that are difficult to access.



**Series 3000 MkII
with Reflex® Sensor
Technology**

Call RAECO to learn more.

Honeywell



AirScan IR for Severe Environment Use

Application Toolkit

For help building a CO2 monitoring system like this one, please call 800-852-9795 and speak with your RAECO account manager.

Monitoring CO2 in Food and Beverage Production Plants

Application

- Many applications in the food and beverage industries generate carbon dioxide (CO2) during production — particularly in fermentation, freezing, baking, and food packaging.
- Because long-term exposure represents a serious health hazard, it's mandatory to monitor CO2 releases in these production and packaging areas.
- Facilities usually have areas that are wet or have high humidity, so any CO2 sensors — which have to be mounted near the floor to properly detect gas accumulation — must be able to withstand sustained exposure to moisture.

Systems also available for refrigerant and ammonia monitoring.

Solution

- AirScan IR-F9 has a rugged steel enclosure and infrared sensor that ensures long-term, trouble-free operation, unaffected by severe environments. It's washdown-safe and works in anything from -50° F to 100% humidity. SensorCheck™ technology continuously monitors sensor performance and checks voltage, internal circuitry, operating temperature, wire length and other operating elements.

Results

- Fast response and the ability to start exhaust fans makes AirScan IR ideal for CO2 monitoring.
- Factory-calibrated infrared sensor has warning levels set at 1% and alarm levels set at 2.5%. LCD readout and status LEDs inform workers of real-time concentrations.
- No-drift sensors help keep processes running, since false alarms and forced downtimes are dramatically reduced.

Call RAECO to learn more.

Honeywell Systems for Monitoring Liquefied Natural Gas Applications



Application Toolkit

For help building an integrated system like this one, please call 800-852-9795 and speak with your RAECO account manager.

Application

- The high demand for natural gas has created the need for liquefied natural gas (LNG) facilities. The typical LNG facility requires between 40 and 90 single-point infrared gas detectors, 30 to 60 infrared flame detectors, 10 to 15 open-path gas detectors, plus CO and O2 detectors, and a control system that's capable of running alarms, providing shutdown functions, and triggering foam or sprinkler fire suppression systems.
- Dock areas, storage tanks, liquefiers, and vaporizers require a combination of technologies for effective flame and gas detection. Offices and maintenance shop areas require infrared gas detection, as well as O2 and CO monitoring.
- Many plants use distributed control systems (DCS) for control and shutdown, but can benefit from the addition of a secondary fire and gas detection controller to monitor fire, gas, smoke, and thermal detectors.

Solution

- Honeywell Analytics' FD series flame detectors are sensitive, self-contained "triple IR" sensors that can detect virtually any hydrocarbon fire, with high immunity to false alarms.
- The Searchpoint Optima Plus single-point gas detector continuously monitors combustible and carbon dioxide gases and vapors, and works reliably in high-gas and low-oxygen environments. Its long-term stability and zero drift eliminates the need for frequent calibrations, reducing the total cost of ownership.
- Searchline Excel open path gas detection systems measure gas cloud concentration over a distance of up to 200 meters where gas concentrations are not uniform.
- The HA71 control system offers a new standard in flame- and gas-detection technology. It can monitor 4-20 mA output sensors, smoke detectors, and manual alarm call points. It offers signal processing for up to 16 inputs per controller.

Call RAECO to learn more.

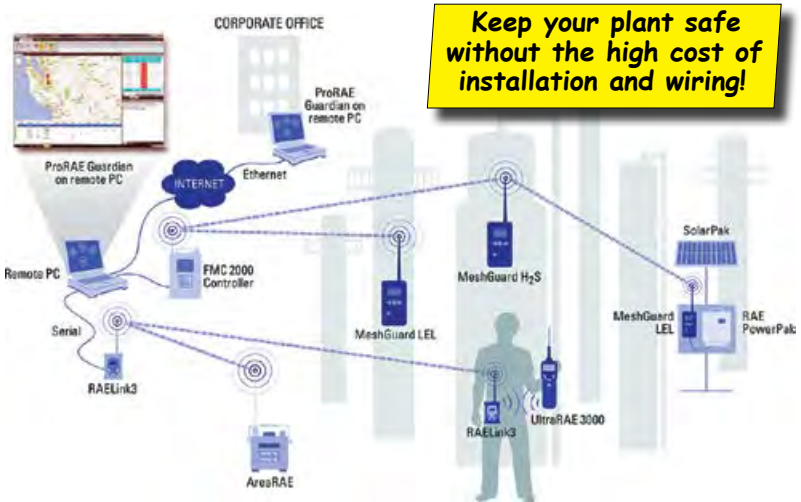
Portable Instruments
Industrial Hygiene
Portable Instruments
Safety
Fixed Instruments
Gas Detection/Monitoring
Fixed Instruments
Analytics
Flow
RAECO Rents



MeshGuard Intelligent Wireless Gas Detection System

Features

- Multiple controller options for real-time wireless data collection and viewing
- Self-forming wireless network; Wireless field units come online automatically
- Self-healing network automatically routes data back to controller through best wireless path available
- Low maintenance field transmitters! Three consumable parts — battery, filter, and sensor — just one tool needed to perform all service
- Intrinsically safe field units, IP65 rated weather resistant, and splash guard equipped for sensor protection
- Magnetic mounting for quick and easy installation
- Battery powered operation for up to 6 months
- Compatible with ProRAE Guardian software platform



MeshGuard Battery-Powered Wireless Gas Detectors

MeshGuard is the leading intelligent wireless gas detection system that is rapidly deployable in numerous industrial and remote monitoring applications. MeshGuard not only saves lives, but tens of thousands of dollars in regulation compliance and information processing. MeshGuard wireless detectors are designed for use in the harshest outdoor environments.

MeshGuard combines the most advanced gas detection technology for industrial safety applications with the latest in connected data systems. Because the system includes powerful wireless sensors, MeshGuard eliminates the need for lengthy and costly installation projects. By detecting and recording a wide range of deadly gases and quickly relaying the data to an easy-to-understand central system, safety personnel have up-to-date information from throughout the network of sensors at a finger's touch.



FMC 2000 Controller Supports up to 24 MeshGuard Detectors



FMC 2000 Wireless Multi-Channel Controller

- Communicates with up to 24 MeshGuard wireless monitors
- Five programmable SPDT relay outputs
- NEMA 3, IP66 stainless steel enclosure
- Built-in wireless antenna and modem
- Five relays, visual and audible alarms
- RS-485 and Ethernet interface

FMC 2000 is a multi-channel controller designed for integration with RAE Systems' MeshGuard intelligent gas detection sensors. The FMC 2000 gathers data and monitors alarms from MeshGuard toxic and flammable gas sensors.

The controller includes built-in security safeguards to resist tampering of critical parameters. The optional FA200 alarm bar adds one audible and four visual alarm outputs, all of which are fully configurable within the controller.

The unit comes standard with five six-amp SPDT relay outputs, and Modbus RTU communications. The stainless steel housing includes a rechargeable lead acid battery for up to 15 hours of operation when line power is not available.



Sensor Ranges

Sensor	Range	Resolution	Response Time	
			T90	T10
H2S	0-100 ppm	0.1 ppm	<30 sec	<30 sec
LEL	0-100%	1%	<30 sec	<30 sec
CO	0-2000 ppm	1 ppm (0-500 ppm) 10 ppm (500-2000 ppm)	<30 sec	<30 sec
O2	0-25%	0.1%	<15 sec	<15 sec
NH3	0-100 ppm	1 ppm	< 90 sec	<200 sec
Cl2	0-10 ppm	0.1 ppm	<30 sec	<30 sec
SO2	0-20 ppm	0.1 ppm	<60 sec	<60 sec

Build a MeshGuard system with a wireless controller in the field, or expand control with a PC running ProRAE Guardian software

PC Controller

Supports up to 500+ MeshGuard Detectors

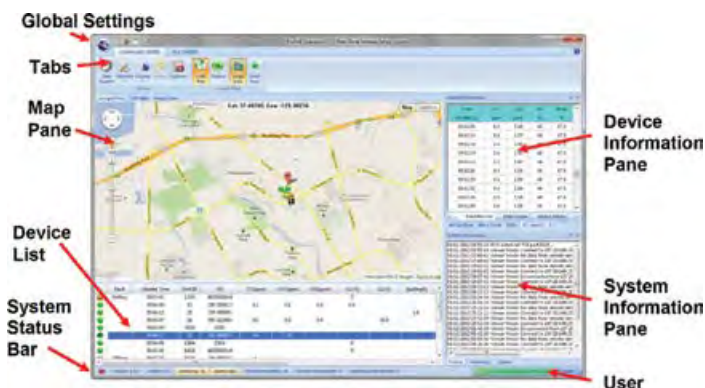


ProRAE Guardian Software

- Simultaneously monitors up to 500 instruments
- Intuitive user interface with simultaneous on-screen instrument readings
- Integrates with Google Maps for precision instrument locations and alarm status
- View map and multiple instrument readings simultaneously on the same display
- Real-time display of device status, sensor readings, and alarms
- Communicates remote alarms via e-mail and text messages
- Datalogging in text and graphical formats, including boolean filters
- XML and Modbus interface for easy integration into third-party systems

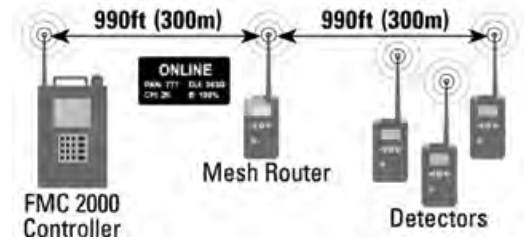
ProRAE Guardian represents an advanced generation of real-time wireless threat detection solutions. The program serves as a mobile command center for safety managers and incident commanders by connecting and relaying data from RAE Systems and select third party wireless products to remote locations anywhere in the world.

ProRAE Guardian accepts real-time detector data and instantly displays device status, alarm, and sensor reading information — all integrated on a single map display. Because ProRAE Guardian is always on and always connected, geographically dispersed teams can coordinate threat responses while simultaneously viewing the same situational data, all in real time.



Mesh Router Wireless Range Extender and Deployment Tool

- Large area coverage with multi-hop mesh network
- Operating distance: up to 990 feet (300 meters), line-of-sight
- Mesh network with automatic network forming and configuration
- Low-cost installation — no hard-wiring involved
- Field-replaceable battery
- Easy-to-read display of signal strength, plus bright red flashing alarm
- Highly resistant to RFI interference
- IP65 rated for outdoor use in harsh environments



The Mesh Router allows wireless sensor networks to be deployed at greater distances from a central controller. The Mesh Router is a Class I, Div 1 (Zone 0) portable wireless device that extends wireless transmission range between points. MeshGuard monitors and routers work together to find the best possible transmission path for sensor readings.

As a system deployment tool, the Mesh Router displays the real-time wireless signal strength at any given location, for rapid determination of suitable mounting locations for MeshGuard monitors.

The Mesh Router is in constant communication with the FMC 2000 controller and MeshGuard detectors in the network, and can manage up to 12 detectors. The unit can operate continuously for more than 10 days with an internal battery, or more than 45 days with an external PowerPak rechargeable battery.

MeshReader for PC-Based Controllers

- Communicates with up to 24 remote monitors
- Receives data wirelessly from remote detectors and pushes data to ProRAE Guardian software on a PC
- Easily scalable system by merging multiple MeshReaders through the Internet
- Wireless mesh input, Ethernet and RS-232 data output for direct connection to PC or Ethernet network
- Designed for non-hazardous indoor locations. For outdoor applications, requires addition of an outdoor antenna and 30-foot cable

Call RAECO for help building your complete MeshGuard wireless gas detection system.

Fire Sentry Multi-Spectrum Fire and Flame Detectors

FS24X Multi-Spectrum QuadBand Triple IR Flame Detector



Features

- Detects hydrocarbon and non-hydrocarbon fuel fires in all environmental conditions
- Patented WideBand IR™ technology, Electronic Frequency Analysis™
- Field of view: 90° full 100% cone of vision ±45° from ON axis or 110° full 100% cone of vision ±55° from ON axis
- Visible 400–700 nanometer spectral sensitivity (0.07 to 5.0 microns)
- Blue, red, and yellow LEDs alert you to power, alarm, and fault conditions
- Real-time clock for accurate timing of events
- RS-485 Modbus communication
- 0–20 mA stepped analog output (user-selectable source or sink)
- SPST fault relay and SPDT fire alarm verification and auxiliary relays
- FirePic™ pre-fire event data storage plus event logs with time and data stamp
- FM Class I, Div 1 and 2, Groups B–D; Class II, Div 1 and 2, Groups E–G, Class III approval
- ATEX II 2 G D; Ex d IIC approval
- Meets SIL 2 requirement (FMEDA available)

WideBand IR™ infrared technology with high-speed solid state Quantum sensors detects hydrocarbon and non-hydrocarbon fires in all weather conditions. If the detector's signal is blocked by window glass, the patented WideBand IR sensors will still alarm to the fire, but at a reduced sensitivity and slower response time.

Dual microprocessors provide fail-safe operation with fast, reliable performance. The master microprocessor performs high speed digital sampling and signal processing calculations. The slave processor handles sensor data, performs communications, self-diagnostics, and provides interface versatility, with additional memory for storing event log and FirePic™ data.

The Fire Sentry FS24X has a detection range greater than 200 feet for the detection of a one-square-foot Heptane reference fire, and has a cone of vision far greater in volumetric coverage than any other multi-spectrum IR Detector. This means fewer detectors can be used to keep your plant safe.

Model Selection Guide

Description	Field of View	Temperature Range	Catalog Number	Price
Copper-Free Aluminum Housing	110°	-40° to 85° C	FS24X-211-21-1	\$3190.00
	90°	-60° to 85° C	FS24X-911-21-1	2436.00
316 Stainless Steel Housing	110°	-40° to 85° C	FS24X-211-22-1	3442.00
	90°	-60° to 85° C	FS24X-911-22-1	2762.00
Accessories				
Stainless Steel Swivel-Mounting Assembly			SM4	184.00
Universal Charger for Test Lamps/Interface Kits			PSU-12	128.00
IR Test Lamp, Explosion-Proof Version			TL-2055	2720.00
IR Test Lamp, Non-Explosion-Proof Version			TL-1055	1172.00
Sun Shield			SH-001	127.00
Field-of-View Restrictor			FVR-01	99.00

Need help building a flame detector system? Call RAECO and talk to a factory-trained specialist.

FS20X Multi-Spectrum UV/Dual IR/VIS Fire and Flame Detector



- Detection range >200 feet to 1 sq. ft. heptane fire; Selectable sensitivities
- WideBand IR™ Infrared plus ultraviolet
- FirePic™: Up to 6 pre-fire event data storage plus event log with date and time stamps
- Built-in RS-485 Modbus communication, 4-20 mA isolated analog output, sink or source
- Alarm, fault and fire verification relays
- High RFI and EMI immunity
- FM Approved Class I, Div 1, Groups A-D; Class II, Div 1, Groups E-G; Class III; Also available with ATEX/IECEx Class I, Zone 1
- PC software and Interface Module (FSIM) for fault diagnostics, real-time graphs (RTGs), and downloading of FirePics™ and event log
- Two 3/4" NPT entries

Fire Sentry FS20X detector uses advanced patented algorithms for signal processing and fire and flame analysis, and is designed to alarm to all types of fires in all industrial environmental conditions. If the detector's UV signal is degraded by heavy smoke or a contaminated lens, the patented WideBand IR™, Near Band IR and Visible sensors will still alarm to fire, but at a reduced sensitivity and slower response time.

The Fire Sentry FS20X has a range in excess of 200 feet for the detection of a one-square-foot Heptane reference fire, with a cone of vision greater in volumetric coverage than most UV/IR detectors, so you can use fewer detectors to cover a broader area.

Model Selection Guide

Description	Field of View	Temperature Range	Catalog Number	Price
Aluminum Housing	90°	-40° to 85° C	FS20X-211-21-2	\$2450.00
Stainless Steel Housing			FS20X-211-22-2	2754.00
Accessories				
Stainless Steel Swivel-Mounting Assembly			SM4	184.00
Universal Charger for Test Lamps/Interface Kits			PSU-12	128.00
IR Test Lamp, Explosion-Proof Version			TL-2055	2720.00
IR Test Lamp, Non-Explosion-Proof Version			TL-1055	1172.00
Field-of-View Restrictor			FVR-01	99.00

Honeywell

301C Three-Zone Digital Controller



Above: Vulcain 301C three-channel controller. Below, clockwise from left: 301R output relay module, 301W wireless transmitter, and 301EM refrigerant gas monitoring system with visual and audible alarms.



ASHRAE-compliant refrigerant monitor

Features

- Zero maintenance, automatic quick self-test at warmup
- Continuous alphanumeric display
- Interchangeable transmitters to detect different gases
- Manages up to 768 events with programmable latching alarms
- Allows for up to 126 zoning groups to help save energy and extend fan and relay life
- Modbus compatible, BACnet/IP also available
- Expands to handle up to 96 transmitters or relay modules, and up to 50 301W wireless sensors
- Programmable time delays; Integrated time clock enables scheduling of system operations
- Full array of visual indicators and integrated 65 dBA alarm levels
- Programmable relays can be set for fail-safe operation

Reduce wiring costs!
Wireless transmitters available with sensors for CO, O2, and NO2.

Honeywell's Vulcain 301C continuously monitors and controls toxic gases, combustible gases, and oxygen hazards. Using an addressable RS-485 Modbus communication protocol, the 301C uses daisy chain wiring, so it only takes two pairs of wires to connect up to 96 transmitters on the three input channels. This simplifies installation and significantly reduces operational and maintenance costs.

The Vulcain 301C controller offers unique zoning capabilities that permit the averaging and comparison of multiple sensor readings. Zoning can reduce operational costs by ensuring that localized brief fluctuations registered at a single transmitter do not prematurely or accidentally activate relays. This reduces runtime on fans, yielding savings in energy consumption and wear-and-tear.

The 301C has the capacity to manage input from three Modbus channels for up to 96 transmitters and up to 50 wireless transmitters that can be associated with 126 zones. Transmitters can belong to an unlimited number of zones, providing maximum operational and control flexibility.

Vulcain 301W wireless gas transmitters detect CO, NO2, and O2, and operates maintenance-free for up to two years without calibration or battery replacement. The 301W can exchange data with the 301C controller over a wireless mesh network via a secure 128-bit encrypted communication protocol. The 301C/301W system is ideal for parking structure monitoring or other zone-based wide area gas monitoring applications.

301EM Refrigerant Gas Monitoring System

- Meets ASHRAE 15, B-52 and International Mechanical Code requirements
- For optimized gas detection in chiller rooms
- Monitors up to four remote sensors at once
- RS-485 Modbus communications standard
- Three 24 VDC alarm outputs and four 4-20 mA outputs
- Four fully programmable relays, three alarm levels, with built-in visual indicators and audible alarm

ASHRAE and B-52 security standards were established to minimize risk, and protect the safety of mechanical room personnel and the environment at large. The 301EM controller has been designed to meet and exceed these standards. It can be configured to offer manual fan activation plus automatic activation for fan, horn, and strobe.

Latching relay for manual alarm recognition, silence key for manual horn deactivation, built-in 24 VDC outputs for horn operation, and two break-glass switch accessories for manual alarm activation ensure optimal performance.

Toxic, oxygen, and combustible sensors are available, in addition to the refrigerant sensors shown. Call RAECO.

Model Selection Guide

Description		Catalog Number	Price
VA301C Three-Zone Controller for Gas Detection, Plastic Enclosure			
VA301C, RS-485 Modbus Output		VA301C	\$1118.00
VA301C, RS-485 Modbus Output, Datalogging		VA301C-DLC	2627.00
Accessories			
Relay Output Module, 8 Relays, 5A DPDT		VA301R8	325.00
Alarm Annunciator Panel		VA301AP	572.00
VA301W Wireless Transmitter, 0-250 ppm CO		301WCO	895.00
VA301W Wireless Transmitter, 0-6 ppm NO2		301WNO2	895.00
VA301W Wireless Transmitter, 0-25% O2		301WO2	895.00
CO Replacement Cartridge for VA301W		S301WCO	295.00
NO2 Replacement Cartridge for VA301W		S301WNO2	295.00
O2 Replacement Cartridge for VA301W		S301WO2	295.00
VA301EM ASHRAE-Compliant Controller for Remote Refrigerant Sensing			
Outputs: Three 24 VDC, Four Relay, Four 4-20 mA		VA301EM-20	1288.00
Outputs: Three 24 VDC, Four Relay, Four 4-20 mA, Strobe Light and Horn		VA301EM-RFSA-20	1643.00
VA301EM Sensors	R11 Refrigerant Gas Sensor	VA301IRFSR11	1329.00
	R22 Refrigerant Gas Sensor	VA301IRFSR22	1329.00
	R123 Refrigerant Gas Sensor	VA301IRFSR123	1329.00
	R134A Refrigerant Gas Sensor	VA301IRFSR134A	1329.00
	R404A Refrigerant Gas Sensor	VA301IRFSR404A	1329.00
	R407C Refrigerant Gas Sensor	VA301IRFSR407C	1329.00
	R410A Refrigerant Gas Sensor	VA301IRFSR410A	1329.00

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E3Point Toxic and Combustible Gas Monitor

Great for commercial applications



Clockwise from left: Main unit, plug-and-play sensor cartridge, and remote sensor.

Honeywell

Features

- Comes in stand-alone, stand-alone with remote sensor (dual gas) or network versions
- Connects to analog or digital systems; Compatible with building automation systems, including BACnet, Modbus, or Lonworks
- Advanced electrochemical cells for toxic gases and catalytic bead for combustible gases; Factory-calibrated plug-and-play sensors and replacement cartridges
- Works through network to improve fault diagnostics and collect data on gas concentration levels, sensor conditions, and more
- Couple with Honeywell 301C controller to log data and daisy-chain up to 96 E3Point units

Honeywell's E3Point is a toxic/combustible gas monitor that makes commercial operations run more intelligently, to protect people, property, and your bottom line. It goes beyond basic protection to increase energy management, efficiency, and economic value.

Smart sensors are pre-calibrated, and auto-configure at setup. They operate continuously on Honeywell's patented Reflex® technology, which continuously monitors sensor cell condition and alerts you to a fault status. Reflex bounces electrical signals into the E3Point electrochemical sensor cell at regular intervals. It's a form of electronic bump testing for ongoing monitoring of cell response.

E3Point uses demand control ventilation, through relays, BAS, or a controller, to increase energy savings, extend fan life, and align with green building Best Practices. In its network configuration, E3Point can optimize HVAC, fire/smoke, surveillance, and other building systems performance. E3Point on-board relays can be used to activate ventilation fan or strobe light visible alarms.

E3Point network version supports Modbus protocol, so multiple detectors can be daisy-chained to monitor up to 96 points on a serial bus. The BACnet system can activate alarms, strobes, and horns that are tied to building HVAC controls.

Condensed Specifications

Power Requirements: 24 VAC nominal, 50/60 Hz, 0.4A; 24 VDC nominal (20–38 VDC); With remote sensor: 7W max.; AC input option: 120 VAC nominal $\pm 10\%$ with on-board transformer

Output: Two DPDT relays, 5A at 250 VAC, 5A @ 30 VDC; 4–20 mA output for communications

Operating Temperature: -40° to 122°F; CO monitoring: -4° to 122°F

Display: Two-line, 8-character backlit LCD with visual indicators; Green LED for power, two amber LEDs for alarm/fault

Audible Alarm: 85 dBA at 10 feet

Detectable Gases

Gas Type	Range	Resolution	Alarm A	Alarm B	Alarm C
CO	0–250 ppm	1 ppm	25 ppm	200 ppm	225 ppm
H2S	0–50 ppm	0.1 ppm	10 ppm	15 ppm	20 ppm
NO2	0–16 ppm	0.1 ppm	0.7 ppm	2 ppm	9 ppm
O2	0–25% vol	0.1% vol	19.5%	22%	22.5%
H2, Methane, Propane	0–100% LEL	0.5% LEL	25% LEL	50% LEL	90% LEL

Enclosure: Polycarbonate

Approvals: CSA, UL

Model Selection Guide

E3Point monitors no longer come pre-configured with CO sensors. All sensors must be ordered as separate line items.

Description	Catalog Number	Price
Single Gas E3Point Toxic/Combustible Gas Monitor		
Surface Mount, Analog Output, 24 VAC/VDC Power	E3SA	\$324.00
Surface Mount, Analog Output, 120 VAC Power	E3SAH	384.00
Duct Mount, Analog Output, 24 VAC/VDC Power	E3DA	546.00
Network-Capable Single Gas E3Point Toxic/Combustible Gas Monitor		
Surface Mount, Modbus Output, 24 VAC/VDC Power	E3SM*	389.00
Duct Mount, Modbus Output, 24 VAC/VDC Power	E3DM*	546.00
Remote Sensors and Replacement Sensor Cartridges		
Remote Sensors	Carbon Monoxide	E3SRMCO 262.00
	Nitrogen Dioxide	E3SRMNO2 262.00
	Hydrogen Sulfide	E3SRMH2S 262.00
	Hydrogen	E3SRMH2 262.00
	Oxygen	E3SRMO2 262.00
	Methane	E3SRMM 262.00
	Propane	E3SRMP 262.00
Sensor Cartridges	Carbon Monoxide	E3SCO 121.00
	Nitrogen Dioxide	E3NO2 221.00
	Hydrogen Sulfide	E3H2S 221.00
	Hydrogen	E3H2 221.00
	Oxygen	E3O2 221.00
	Methane	E3M 221.00
	Propane	E3P 221.00

* Can also be configured for BACnet.

Honeywell Analytics E3Point replaces the retired Vulcain models VA201T, VA201M, and VA301M.

FIXED LIQUID AND GAS ANALYZERS

V 04.2015

RAECO

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Products in this catalog are available to rent anywhere in the US. Due to representative agreements with our manufacturer partners, not all products are available for sale in all areas and markets. Prices are current at publication, and are subject to change without notice.

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Looking for instruments for in-line concentration measurement in process liquids? See pages 176 to 179 for K-Patents process refractometers. Models available for sanitary or general service applications and chemically aggressive liquids.

Portable Instruments
Industrial Hygiene

Portable Instruments
Safety

Fixed Instruments
Gas Detection/Monitoring

Fixed Instruments
Analytics

Flow

RAECO Rents

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Rentals: 866-RENT-EHS
Fax: 815-464-8720

SIEMENS Extractive Thermal Conductivity Gas Analyzers



Application Toolkit

Extractive thermal conductivity analyzer for hydrogen gas

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

CALOMAT 6, 19" rack mount
Prices start at \$6113.00
CALOMAT 6, field mount analyzer
Prices start at \$9186.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

CALOMAT 6 Analyzer for Non-Corrosive Gas Mixtures

Features

- Stainless steel tubed and gas-tight sample cell, suitable for H₂ and HE plus flammable gases without purging
- Four measuring ranges, freely programmable and linearized
- Fast response time — T₉₀ < 5 seconds
- Smallest possible measuring spans to 1% Hydrogen
- Galvanically isolated measured value output of 0, 2, or 4–20 mA
- Auto-ranging and remote ranging
- Standard with eight digital I/O
- Interference correction for up to four components
- RS-485 interface standard with optional Profibus DP/PA and Ethernet communications

CALOMAT 6 makes it possible for the measurements of hydrogen and noble gases in non-corrosive gas mixtures. The device is available in 19" rack-mount housing or in the robust field case for the installation in rough atmospheres. An additional supervision unit makes CALOMAT 6 suitable for installation in Ex-Zone 1.

The CALOMAT's measuring principle is based on the measurement of thermal conductivity, a physical characteristic that differs between gases. The signal is determined by a bridge that measures electrical resistance and the difference between the measuring gas channel and the reference cell.

Specifications

Gas	H ₂ or He in inert mixtures
Range	0–100% vol
Detection limit	1% range
Gas temp.	50°C max.



Application Toolkit

Extractive thermal conductivity analyzer for corrosive gases

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

CALOMAT 62E, 19" rack mount
Prices start at \$8353.00
CALOMAT 62F, field mount analyzer
Prices start at \$10611.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

CALOMAT 62 Analyzer for Corrosive Gas Mixtures

Features

- Specially designed for applications with corrosive gases
- Integrated correction of cross-interferences, no external calculation required
- For chlorine-alkaline electrolysis, steel mills, liquefied natural gas, ammonia, and fertilizer plants
- Electronics and analyzer unit: Gas-tight separation, purgeable, IP65 long-life service, even in harsh environments
- Four freely-programmable linear measuring ranges with suppressed zero
- Smallest spans down to 1% H₂ (with suppressed zero: 99–100% H₂)
- Electrically isolated measured-value output 0/2/4–20 mA

CALOMAT 62 measures the concentration of gas components — H₂, H₂, Cl₂, HCl, or HN₃ in binary or quasi-binary gas blends. It is specifically designed for use in applications with corrosive gases.

Both CALOMAT analyzers are available in a 19" rack-mount housing or a purgeable rugged IP65 field housing with gas-proofed separation of the electronics and analysis sections. For fast, simple maintenance, the CALOMAT can communicate over TCP/IP Ethernet with Siemens' SIPROM GA software. Profibus DP and PA interfaces offer connection to plant automation systems.

Specifications

Gas	H ₂ , NH ₃ or CO ₂ in N ₂ ; SO ₂ in air, or CO ₂ in H ₂
Range	0–100% vol
Detection limit	1% range
Gas temp.	60°C max.

SIEMENS Extractive NDIR Gas Analyzers

ULTRAMAT 6 NDIR Two-Beam Alternating Light Analyzer for Hydrocarbons



Application Toolkit

NDIR two-beam analyzer for hydrocarbon gases

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

ULTRAMAT 6, field mount

One channel, one IR

Prices start at \$12886.00

One channel, two IR

Prices start at \$12886.00

ULTRAMAT 6, 19" rack mount

One channel, one IR

Prices start at \$11902.00

Two channel, one IR each

Prices start at \$17103.00

One channel, two IR

Prices start at \$11872.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Features

- Highly selective with double-layer detector and optical coupler for reliable measurement even in complex gas mixtures
- Corrosion-resistant materials in gas path
- For boiler control in combustion plants, emissions measurement in incineration plants, process gas concentrations in chemical applications, environmental protection, MAC-value workplace monitoring and warning equipment
- Ex versions to analyzer flammable and non-flammable gases or vapors in hazardous areas
- Supports one analog output and six relay outputs, two analog inputs and six binary inputs
- RS-485 interface standard with optional Profibus DP/PA

ULTRAMAT 6 single-channel or dual-channel gas analyzers operate according to the NDIR two-beam alternating light principle, and measure highly selective gases with absorption bands in the infrared wavelength range from 2 to 9µm. Single-channel analyzers measure up to two gas components. Dual-channel analyzers measure up to four gases simultaneously.

The gas proof separation of the electronic and physical components of the field-mount analyzer with IP65 protection and purging gas connection guarantees a long service life, even in severe ambient conditions.

Specifications

Gas	IR wavelength 2-9 µm: CO, CO ₂ , NO, SO ₂ , NH ₃ , H ₂ O, CH ₄ , hydrocarbons
Range	Depends on gas
Detection limit	Gas specific from 0.05 ppm
Gas temp.	50°C max.



ULTRAMAT 23 Low-Cost NDIR Analyzer for Hydrocarbons and Oxygen



Application Toolkit

NDIR two-beam analyzer for hydrocarbon gases

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

ULTRAMAT 23, 19" rack mount

One IR gas plus O₂

Prices start at \$6671.00

Two IR gases plus O₂

Prices start at \$9560.00

Three IR gases plus O₂

Prices start at \$12119.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Features

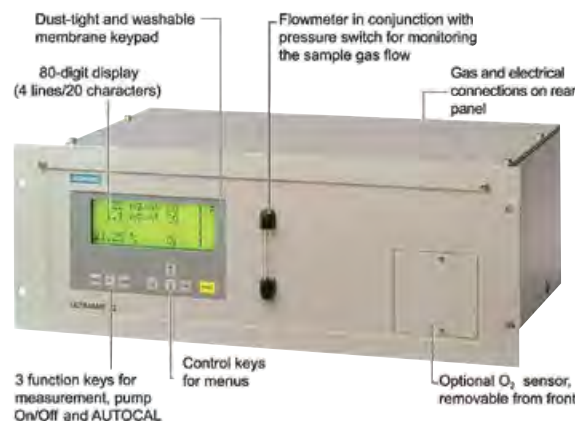
- Versions for one, two, or three infrared-sensitive gases plus O₂
- Infrared sensors plus electrochemical measuring cell
- Highly selective by multiple layer detectors
- AUTOCAL in process with ambient air — high efficiency, so no calibration gas or accessories are required
- Supports one analog output and six relay outputs, two analog inputs and six binary inputs
- RS-485 interface standard with optional Profibus DP/PA

ULTRAMAT 23's multi-component design with NDIR sensors for IR-active gases and an electrochemical cell for oxygen measurement make it an economical and space-saving device for accurate gas measurement. The integrated automatic calibration function using ambient air reduces the need to check with calibration gases to just once per year.

Multi-layer detectors guarantee high selectivity and reduced water vapor interference. The measuring cells used are robust and resistant, and can be cleaned in the event of pollution. ULTRAMAT 23 also supports two freely configurable undershoot and overshoot limit values per measured gas.

Specifications

Gas	IR wavelength 2-9 µm: CO, CO ₂ , NO, SO ₂ , CH ₄ , plus O ₂ (via electro- chemical cell)
Range	Depends on gas, analyzer model
Gas temp.	50°C max.



SIEMENS Extractive Oxygen Gas Analyzers

OXYMAT 61 Paramagnetic Analyzer for Oxygen in Standard Applications



Application Toolkit

Paramagnetic alternating pressure analyzer for oxygen gas

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

OXYMAT 61, 19" rack mount
Prices start at \$5200.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Features

- Single channel oxygen analyzer in 19" rack mount enclosure
- Fast response — T90 <3 seconds
- Versions with internal pump for reference gas air or external reference gas supply
- Stainless steel sample cell and Viton tubing
- Autocal and autoranging
- Standard with eight digital I/O
- RS-485 interface standard with optional Profibus DP/PA and Ethernet communications

OXYMAT 61 is a low-cost oxygen analyzer for standard applications. It requires ambient air — supplied by an integral pump or compressed bottled gas — as its reference gas.

Specifications

Gas	O ₂
Range	0–100% vol
Detection limit	2% range (200 ppm)
Gas temp.	50°C max.

OXYMAT 6 Paramagnetic Analyzer for Oxygen in Corrosive Gases



Application Toolkit

Paramagnetic alternating pressure analyzer for oxygen gas

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

OXYMAT 6, 19" rack mount
Prices start at \$8436.00
OXYMAT 6, field mount analyzer
Prices start at \$11031.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Features

- Single channel oxygen analyzer
- Paramagnetic alternating pressure principle for small measuring ranges (0–0.5% or 99.5–100% oxygen) with absolute linearity
- Detector element has no contact with sample gas — provides long service life under harsh conditions
- Available in 19" rack mount or field mount unit (left) for ATEX-approved Zone 1 and Zone 2 locations
- Standard with eight digital I/O
- For boiler control in firing systems, applications in safety-relevant, areas, warning equipment, environmental protection, inert gas monitoring as certified gas warning equipment, or to analyze flammable and non-flammable gases or vapors in hazardous areas
- RS-485 interface standard with optional Profibus DP/PA and Ethernet communications

Most frequently used for demanding applications, the OXYMAT 6 must meet high standards with regards to reliability and measuring quality.

OXYMAT 6 measures oxygen using the paramagnetic alternating pressure method, which guarantees perfect linearity, and allows parameterization of small measuring ranges of 0–0.5% (detection limit 50 ppm) up to 0–100% in a single device. The sensor inside the detector does not come into contact with the sample gas, making the OXYMAT suitable for measuring corrosive gases. Corrosive-resistant materials are used in the gas path.

Specifications

Gas	O ₂
Range	0–100% vol
Detection limit	0.5% range
Gas temp.	50°C max.

OXYMAT 64 Zirconium Dioxide Probe Analyzer for Trace Oxygen Detection



Application Toolkit

Zirconium dioxide probe analyzer for trace oxygen gas

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

OXYMAT 64, 19" rack mount
Prices start at \$8247.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Features

- Single channel oxygen analyzer in 19" rack mount enclosure
- For ppm levels of oxygen concentrations in pure gas applications
- Versions with internal pump for reference gas air or external reference gas supply
- Supports one analog output and six relay outputs, two analog inputs and six binary inputs
- RS-485 interface standard with optional Profibus DP/PA

OXYMAT 64 can control the measurement of oxygen concentration in the smallest tracks, even down to the smallest measuring area of 0–10 ppm. OXYMAT 64 is ideal for production of technical gases, welding, air separation plants, metal production, hardening shops, chemical plants, and food and beverage applications.

OXYMAT 64 works with ZrO₂ sensors, which measures gas with steady flow through a 650°C heated, pipe-shaped sensor. While the sample gas flows through the sensor, the outside of the sensor is exposed to ambient air, which acts as a reference electrode. Depending on the application, both catalytic active and inactive ZrO₂ sensors are available.

Specifications

Gas	O ₂
Range	0–10 to 0–99999 vpm
Detection limit	1% span, <0.1 vpm within 0–10 vpm range
Gas temp.	50°C max.

ULTRAMAT/OXYMAT 6 Combination NDIR and Paramagnetic Analyzer



Application Toolkit

Combination analyzer for hydrocarbons and oxygen

Output: 0/2/4–20 mA plus Profibus, RS-485, and Ethernet

ULTRAMAT/OXYMAT6, 19" rack mount, Two channels: 1xO₂, 1xIR
Prices start at \$16718.00

ULTRAMAT/OXYMAT6, 19" rack mount, Two channels: 1xO₂, 2xIR
Prices start at \$16718.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Features

- Oxygen and infrared-active gas measurement in a single 19" rack mount enclosure
- Corrosion-resistant materials in the gas path for measuring highly corrosive sample gases
- Cleanable sample cells for cost savings
- ULTRAMAT channel supports low detection limits and reliable measurement in complex gas mixtures
- OXYMAT channel suitable for purity monitoring and air separation
- Supports one analog output and six relay outputs, two analog inputs and six binary inputs
- RS-485 interface standard with optional Profibus DP/PA

The ULTRAMAT/OXYMAT 6 analyzer combines the features of the ULTRAMAT 6 NDIR sensor analyzer and the OXYMAT 6 paramagnetic analyzer, for two infrared channels and one oxygen measurement channel in a single housing and minimal amount of space.

The IR physics of the ULTRAMAT use the NDIR method to continuously and selectively measure one or more infrared-active gases, with absorption bands in the infrared wave range from 2 to 9 micrometers. The use of optical couplers and optical filters increase the selectivity, so the analyzer can be used for measurements even in complex gas mixtures, at low concentrations and low detection limits.

The OXYMAT physics use the paramagnetic property of the oxygen molecule to measure very precise concentrations of oxygen. This technology guarantees perfect linearity, and allows parameterization of minimal measuring ranges of 0–0.5% (detection limit 50 ppm) up to 0–100%, or even 99.5–100% in a single device.

Specifications

Gas	O ₂ , CO, CO ₂ , NO, SO ₂ , NH ₃ , H ₂ O, CH ₄ , hydrocarbons
Range	0–100% volume
Detection limit	0–5 ppm, 0–100 ppm, 0–0.5% O ₂ (gas-dependent)
Gas temp.	50°C max.

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SIEMENS *Extractive Flame Ionization Gas Analyzers*

FIDAMAT 6 Flame Ionization Detector for Extractive Gas Analysis



Application Toolkit

Extractive flame ionization detector
for total hydrocarbons, 19" rack
mount analyzer

Output: 0/2/4–20 mA plus Profibus,
RS-485, Ethernet optional

FIDAMAT 6 analyzer
Prices start at \$10225.00

Please issue all orders to Siemens
Industry Inc, c/o RAECO.

Features

- Four freely parameterizable linear measuring ranges with suppressed zero
- Galvanically isolated measured value output of 0, 2, or 4-20 mA
- Complete heated gas path up to 200°C for measuring corrosive gases and those with moisture content up to 100%
- Wear-free, corrosion-proof stainless steel filter
- Clog-free sample gas quartz capillary
- Corrosion protection by pump shutdown in case of a deviation in setpoint temperature of oven or pump heating system
- Response factors according to emission requirements
- Low combustion air consumption
- Low cross-sensitivity to interfering gases
- Low influence of oxygen on measured value

FIDAMAT 6 flame ionization gas analyzers measure total hydrocarbons in gases from traces to high percentage measuring ranges. Typical applications include emissions monitoring for government regulation and compliance, exhaust monitoring from driers and paint shops, process measurement in the chemical and petrochemical industries, TLV measurement in workplaces, ambient air monitoring and measurement of impurities in gas production.

Thanks to its robust design, FIDAMAT is equally suited for measuring both total trace hydrocarbons and corrosive process gases.

The heart of the FIDAMAT is the flame ionization detector. The sample gas is mixed with hydrogen and a certain amount of air, and fed to nozzle in the combustion chamber. There, the mixture is ignited and the hydrocarbons are ionized. An electrode on top of the flame picks up the ions. The ionization current is directly proportional to the amount of hydrocarbon atoms in the sample gas.

FIDAMAT 6 features Siemens' backlit LCD analyzer display, with simultaneous display of measured value, status bar, and measuring ranges. It includes warning and fault messages for failure of combustion gas, extinguished flame, and to indicate pump and filter faults.

A standard RS-485 communication connection supports USB, Ethernet, and RS-232, and can be used to connect to Profibus DP/PA interface.

The system includes one analog output for each measured component, two programmable analog inputs, six configurable binary inputs, six configurable relay outputs for failure, maintenance request, maintenance switch, limit alarm, external solenoid valves, and measuring point switchover. Eight more binary inputs and eight relay outputs can be added for autocalibration to up to four calibration gases.

FIDAMAT operation includes automatic startup and shutdown by flow control, automatic zero and span calibration, automatic flame reignition, and safety shutoff of sample gases and back-purge of the gas path.

Specifications

Gas	Total hydrocarbons
Range	0-99.999 vpm
Resolution	0.1% value
Detection limit	50/100 ppb
Gas temp.	200°C max.

Substance	Mean Response Factor
Acetone	0.92
Acetylene	0.91
Benzene	1.01
Chlorobenzene	1.15
Chloroform	0.72
Cyclohexane	1.08
Dichloromethane	1.13
Ethane	0.99
Ethanoic acid	1.13
Ethanol	0.83
Ethyl acetate	0.76
Ethyl benzene	0.96
Isobutyl acetate	0.83
Iso-octane	1.04
Isopropanol	0.81
Methane	1.06
Methanol	0.87
Methyl acetate	0.67
n-Butane	1.00
n-Heptane	1.00
n-Hexane	1.01
n-Propane	1.00
Propene	0.84
P-Xylene	1.03
Tetrachlorethene	1.07
Toluene	1.06
Trichloroethene	1.01

SIEMENS Continuous In-Situ Process Gas Analyzers



LDS 6 In-Situ Multipoint Process Gas Analyzer

Features

- In-situ measurement — no gas sampling required
- Rack-mount analyzer supports up to three measuring points
- Built-in auto-calibration, dynamic dust load compensation (up to 100 g/Nm³)
- High selectivity, no cross interferences
- Fast determination of gas concentration and temperature at the same time — no temperature influence from radiation of particles, no wall effect, no drift
- For applications in process control, DeNO_x optimization, combustion control, emissions monitoring, filter optimization

Specifications

Gas (three max)	O ₂ , NH ₃ , HF, H ₂ O, CO ₂ , CO, HCl
Measuring range	0–5 ppm to 0–5% (gas-specific)
Detection limit	From 0.1 ppm
Gas temp.	1500°C max.
Response time	1-3 seconds

Application Toolkit

In-situ tunable diode laser system for multigas measurement, rack-mount analyzer with field-mount sensors.

I/O (per-channel): Two analog outputs three binary inputs and outputs. Ethernet communications.

LDS 19" rack-mount analyzer
Prices start at \$15750.00
LDS cross duct-mount sensors
Prices start at \$4815.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

LDS 6 is a high-performance process gas analyzer that operates directly in the process stream. No extractive sampling lines needed. The central unit is separated from the sensor using fiber optics. So, no matter how hostile the process environment, the analyzer can be installed outside the hazardous area.

The biggest benefit of in-situ gas analysis is that measurements are carried out in real time, so you have more proactive control of dynamic processes and can make cost-saving corrections quickly.

The very nature of laser light allows single-line spectroscopy free of interferences. Since the bandwidth of the laser light is extraordinarily small, only the gas component of interest will interact. Other influences, like dust and temperature, are eliminated by the inherent compensation capabilities of this measurement technology.

LDS 6 comes with all the features for easy-to-use and service-friendly operation. The compact analyzer unit installs easily into a standard 19" rack. A built-in calibration system allows a permanent hands-off self-calibration of the instrument. This, together with the intuitive user interface, makes it very easy to operate the LDS 6 with minimal training. In the unlikely case of service need, the modular design of the system allows for easy replacement of all components in the field, even the laser module.



SITRANS SL Diode Laser In-Situ Oxygen Analyzer

Features

- In-situ measurement — no gas sampling required
- In-line reference cell — stable instrument operation with outstanding performance
- Low maintenance — easy to align and service
- Almost no cross interferences

Specifications

Gas	Oxygen
Measuring range	0–100% (lower ranges selectable)
Resolution	0.02% volume
Detection limit	200 ppm
Gas temp.	600°C max.
Response time	1-3 seconds

Application Toolkit

In-situ tunable diode laser system for oxygen measurement
0–100% O₂, 0.02%V resolution

Two each: Analog inputs, analog outputs, binary inputs, and binary outputs, Profibus DP optional.

SITRANS SL
Prices start at \$17700.00

Please issue all orders to Siemens Industry Inc, c/o RAECO.

Siemens SITRANS SL is a diode laser gas analyzer suitable for fast and non-contact measurement of gas concentrations in process or flue gases. The paired sensors (transmitter and receiver) are meant to be mounted directly on the process with no need of sampling systems. All hardware necessary for processing the measurement signal into a concentration value, monitoring, control and communications are integrated into these two main modules. The IP65-rated sensors are designed for operation under harsh environmental conditions.

Laser light is sent from the transmitter, passing through the process gas, arriving at the detector on the receiver side. The measurements are performed on-line with a very short response time. The laser characteristics allow single-line spectroscopy free of interferences. Since the laser light's bandwidth is extremely narrow, only the gas component of interest will interact with it.

Other process influences, like dust and temperature, are eliminated due to the inherent compensation capabilities of this technique. An in-line reference cell filled with a non-interfering reference gas minimizes the need for maintenance and recalibration.

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oxy.IQ Panametrics Digital Oxygen Transmitter



Features

- Two-wire, loop powered 4-20 mA transmitter
- Proven galvanic fuel cell O₂ sensor technology
- User selectable ranges from 0–10 ppm to 0–10000 ppm or 0–1% to 0–50% oxygen
- Display shows measured value, sensor lifetime indication, NAMUR error indication
- Front keypad for selectable and programmable ranges
- Sensor failure output error

The oxy.IQ is a highly reliable and cost-effective two-wire loop-powered transmitter with a linearized 4-20 mA output. It measures oxygen in ten different selectable ppm ranges and seven selectable percentage ranges, using proven sensor technology to accurately measure oxygen in a variety of gases. When equipped with optional zener barriers, the oxy.IQ can be mounted in hazardous (classified) locations.

The oxy.IQ's oxygen sensor is an advanced galvanic fuel cell that provides superior performance, accuracy, stability, and long life. Its innovative design eliminates the potential for negative signal output and reduces the sources of contamination. The cell is unaffected by other background gases or hydrocarbons, and is compatible with acid gases (OX-2 and OX-4 cells). Because the cell is self-contained, it requires minimal maintenance. There's no electrolyte to change or electrodes to clean.

Applications

- Glove box purge and leak detection
- Natural gas
- Semiconductor wafer machines
- Coating process machines
- Membrane air separators
- Inert wending gases
- Pure gaseous hydrocarbon streams
- Process monitoring of gaseous monomers
- Heat treating and bright annealing

Oxygen Sensor Interference Gases

Gas	OX-1, OX-5 ppm Cont	OX-2 ppm Cont	OX-3 %		OX-4 %	
			Cont	Int [1]	Cont	Int
H ₂ S	<5 ppm	<10 ppm	0.0005%	0.01%	0.001%	0.1%
SO ₃	<10 ppm	<10 ppm	0.01%	0.1%	0.01%	0.1%
SO ₂	<10 ppm	[3]	0.01%	0.1%	[3]	[3]
HCl, HCN	<1000 ppm	[3]	0.1%	1.0%	[3]	[3]
CO ₂	<1000 ppm	[3]	0.1%	20%	[3]	[3]
NO ₂ , Cl ₂	[2]	[2]	[2]	[2]	[2]	[2]

Cont = Continuous, Int = Intermittent

[1] Recommended maximum exposure 30 minutes followed by flushing with ambient air for equal period

[2] Minimal effect on sensor performance, but produces signal interference of 1:2 ratio, ppm levels only (e.g., 100 ppm NO₂ looks like 200 ppm O₂)

[3] Minimal effect on sensor performance.

Condensed Specifications

User-Selectable Measurement Ranges: PPM Sensors: 0–100, 0–200, 0–500, 0–1000, 0–2000, 0–5000 or 0–10000 ppm_v O₂; OX-1 or OX-2 PPM Sensors: 0–10, 0–20 or 0–50 ppm_v O₂; Percent Sensors: 0–1%, 0–2%, 0–5%, 0–10%, 0–25%, or 0–50% O₂

Sample Flow Rate: 1.0 SCFH (500 cc/min) recommended

Construction: NEMA 4X/IP66 weatherproof, corrosion-resistant enclosure; **Wetted Materials:** 316 stainless steel, Viton o-ring, gold-plated sensor electrical contacts and glass; **Process Connection:** 1/8" NPT inlet and outlet; **Cable:** PN 704-1317: Black jacket, twisted pair with connector; 26 AWG, 2m or 10m length

Approvals (Pending): *General purpose:* Non-incendive without use of zener barrier or galvanic isolator, US/Canada Class I, Div 2, Groups A–D, T6; *Intrinsically safe:* With zener barrier, USA/Canada Class I, II, III, Div 1, Groups A–G, T6, AEx ia IIC T6; Ex ia IIC T6; Tamb -20° to 60°C

Installation: *Non-Incendive (Div 2) and General Purpose:* No zener barrier required, 9–28 VDC loop powered, 0.7 W max. *Intrinsically Safe:* Requires MTL7706 zener barrier, only IS cable, one non-IS cable, 24–28 VDC @ 50 mA power required

Operating Temperature: O₂ Sensor: 32° to 113° F (0° to 45°C)

Accuracy at Calibration Point: ±1% range standard; OX-1/OX-2 0–10 ppm_v: ±2% range

Model Selection Guide

Description	Catalog	Price
oxy.IQ Oxygen transmitter, 4–20 mA output	OXYIQ-	\$1900.00
Sensor	None	0 __- 0.00
	Standard PPM (0–10 to 0–1000 ppm)	1 __- 360.00
	Acid ppm (0–10 to 0–1000 ppm)	2 __- 290.00
	Standard Percent Sensor	3 __- 205.00
	Acid Percent Sensor	4 __- 275.00
Package	Standard PPM (0–100/200/500/1000)	5 __- 245.00
	General Service	_ 1 _ 0.00
Cable	Intrinsically Safe	_ 2 _ Call
	None	-- 0- 0.00
	2 Meter Cable	-- 1- 0.00
Barrier	10 Meter Cable	-- 2- 100.00
	None	0 0.00
	Intrinsically Safe Zener Barrier	1 Call



dew.IQ Single Channel Moisture Analyzer with IQ.Probe



Features

- Rack, bench, panel, and wall mount configurations
- NEMA 4 weatherproof membrane front display and keypad
- Compatible with M series or IQ.probe moisture probes
- Displays moisture content in dew/frost point and ppmv
- Fail-safe fault alarm relay
- Two measurement alarm relays

The dew.IQ is an economical single-channel aluminum oxide hygrometer, ideal for industrial applications that require accurate, real-time moisture measurement.

Installing the dew.IQ is simple. As a field upgrade for its predecessors, the M series probe and cable mate to the dew.IQ in minutes, minimizing installation costs.

The dew.IQ accurately tracks fast-changing process conditions and displays the moisture content on an LCD as dew/frost point temperature in °F or °C or as ppmv with a constant pressure input. Measurement is also available as an analog output. The dew.IQ features two Form C alarm relays for high and low moisture limits.

The large display and six-button keypad combine to make selection of analog output zero and span, alarm setpoints fast and easy, and entering calibration data simple and straightforward.

Aluminum Oxide Moisture Probes

Both the IQ.probe and the M series moisture probes are rugged and accurate true absolute humidity sensors, with calibration traceable to national standards.

The IQ.probe measures moisture concentration in gases from trace to ambient levels. It requires only twisted pair cabling, so it can be mounted up to 3000 feet away from the analyzer. The real power of the IQ.probe comes from an electronics module that's attached to the sensor probe. The 16-bit resolution lets it detect parts per billion changes in moisture concentration. The electronics are self-calibrating, ensuring long-term stability.

The IQ.probe sensor can withstand process temperature excursions up to 158° F and process pressures from vacuum to 5000 PSIG. No minimum flow rate is required. It works with gas flow ranges from static to 10,000 cm/s linear velocity at 1 atm, and liquid flow ranges from static to 10 cm/s linear velocity at a density of 1 g/cc.

Specifications

Input: Moisture signal from an M series or IQ.probe thin film aluminum oxide sensor

Calibrated Accuracy (at 77°F): ±3.6° F from -85° to 50°F; ±5.4° F from -112° to 87° F

Dew/Frost Point Temperature: Overall range capability: -166° to 140°F; Standard: -112° to 68°F with data to -166° F; Ultra-low: -166° to -58° F; High range data: -112° to 140°F

Analog Output: Single recorder output, internally optically isolated, 10-bit, 0.1% resolution

Alarm Relays: One failsafe fault relay, two standard Form C SPDT relays, rated 3A @ 250 VAC/30 VDC; Set to any level within the range of the instrument, programmable from the front panel

Datalogger: 32 GB capacity with MicroSD card, 2 GB card included with unit

Display Functions: Dewpoint temperature in °F, °C, or ppmv with a constant pressure input; sensor signals for diagnostics

Power Requirements: Universal power, 100–240 VAC @ 50/60 Hz, or 24 VDC nominal

Operating Temperature: -4° to 140°F (-20° to 60°C)

Intrinsic Safety: External safety barrier for moisture input, optional on M series probe

Applications

- Industrial gas
- Furnace gas/heat treating
- Power generation
- Air dryer
- Pharmaceutical
- Aerospace

Easy field upgrade for the Panametrics MMS35, System 580, Model 600, 700 and older analyzer units.

Learn more about GE analyzers and probes at
RAECO.com. Call for pricing.

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TLG-837 Tail Gas/Air Demand Analyzer

Features

- Continuously measures concentrations of H₂S and SO₂ and outputs air demand signal
- Designed for safety — keeping the sample media in the process pipe, so it doesn't corrupt the electronics
- Patented Demister sampling probe with internal sulfur vapor removal
- Totally solid state with no moving parts, sample lines or heat tracing — designed for low maintenance
- Ultra-safe fiber optic design — no toxic or explosive sample gas in analyzer enclosure
- Superior off-ratio range (100:1 <H₂S/SO₂ ratio <1:20)
- Internal pressure and temperature compensation
- Simple hot-tapping capability
- Convenient introduction method for verification gases
- Automated steam wash cycle for optics

The TLG-837 Analyzer

The TLG-837 analyzer uses a high resolution UV-VIS spectrophotometer to acquire a 200-800 nm absorbance spectrum of the sample gas. Within this spectrum, the analyzer can identify the distinct absorbance curves of each analyte, measure the height of these curves, and correlate the value directly to real-time concentration.

Unlike conventional multi-wave photometers, the TLG-837 uses a dispersive spectrophotometer to acquire a full high-resolution spectrum. Each integer wavelength in the spectral range is individually measured by a dedicated photodiode.

The HMI controlling the spectrophotometer and communication provides a simple touchscreen interface. Running Applied Analytics' ECLIPSE software, the HMI lets you quickly and easily perform tasks like auto zero scheduling, alarm configuration, analog output configuration, and more.

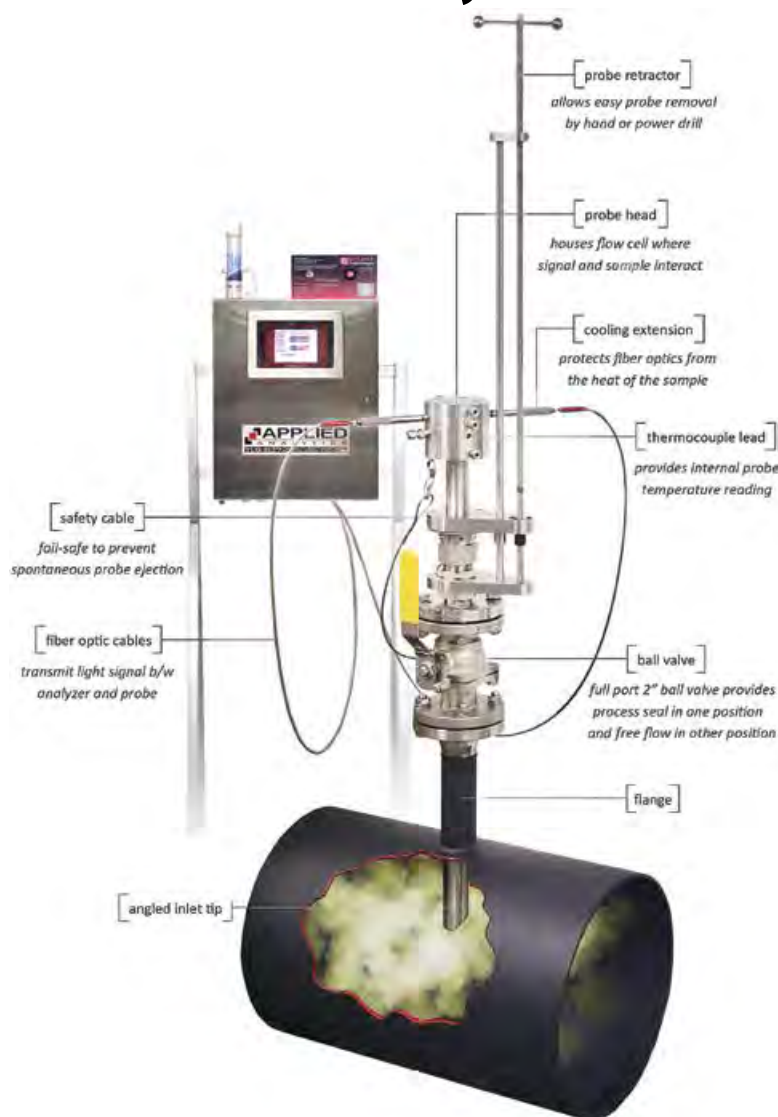
The TLG-837 Demister Sampling Probe

Mounted directly on the process pipeline, the in situ demister probe draws a continuous sample for analysis. The patented design is extremely effective at condensing elemental sulfur vapor out of the sample in a controlled manner in order to protect measurement integrity.

Usually present in the form of S₈, sulfur vapor will jeopardize analysis by distorting absorbance readings or condensing to solid sulfur and coating the optical windows. Other analyzers use crude, confusing correction procedures, often relying on temperature-based sulfur prediction. The only way to secure true measurement accuracy is to physically keep the sulfur from reaching the flow cell.

Using steam, the TLG-837 maintains a stable temperature along its body that forces incident sulfur to liquefy and drip back into the process. This elegant design exploits the relatively high boiling point of elemental sulfur to ensure that the sample reaching the flow cell is nearly sulfur-free.

Call RAECO for help specifying the right tail gas analyzer configuration for your process.



Condensed Specifications

Measurement Principle: Dispersive UV-Vis absorbance spectrophotometry

Detector: nova-II™ UV-VIS diode array spectrometer

Spectral Range: 200-800 nm

Light Source: Pulsed xenon lamp, average 5 year lifespan

Sample Interface: TLG-837 in situ sampling probe

Range/Accuracy: Hydrogen Sulfide (H₂S)/Sulfur Dioxide (SO₂): 0-2% range: ±1% measurement @ ±0.4% repeatability; Carbonyl Sulfide (COS)/Carbon Disulfide (CS₂): 0-2,000 ppm range: ±1% measurement (±5% under 500 ppm) @ ±0.4% repeatability; Air Demand: ±1% measurement @ ±0.1% repeatability

Sensitivity: ±0.1 % full scale

Response Time (T₁₀ - T₉₀): 10s

Wetted Materials: 316/316L Stainless steel

Outputs: One 4-20mA output per component; four digital outputs for fault and sampling system control; Options: Modbus TCP/IP, RS-232

Area Classification: Class I, Div. 2 standard; Class I, Div. 1 and ATEX Exp II 2(2) GD optional

OMA-300 Process Chemical Analyzer

Features

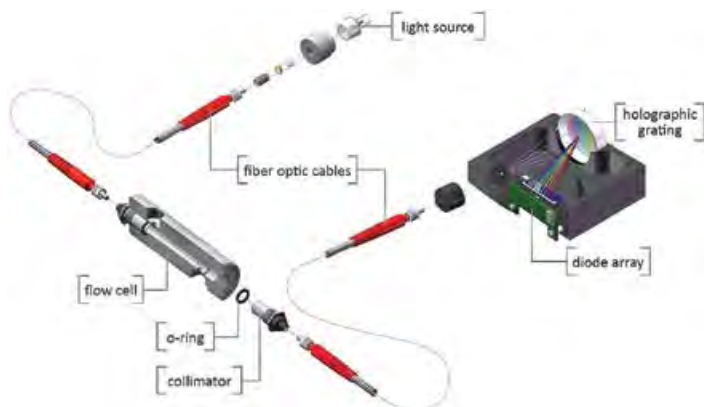
- Measure up to five chemical concentrations and physical properties simultaneously with a single OMA
- Totally solid state — no moving parts, lower maintenance
- Ultra-safe fiber-optic design with dedicated sample flow cell — no sample fluid enters the analyzer enclosure
- Add or remove analytes at any time
- Subtracts background absorbance to help avoid false positives

The OMA-300 industrial liquid analyzer measures a high-resolution absorbance spectrum in a continuously drawn sample from a liquid or gas process stream to provide real-time analytics, including chemical concentrations, purity, and color.

The OMA measures UV-Vis/SW-NIR (ultraviolet-visible / short wave near infrared) absorbance. Depending on which range best suits the analytes, the OMA is configured to acquire either a 200-800 nm spectrum (using xenon light source) or 400-1100 nm spectrum (using deuterium light source).

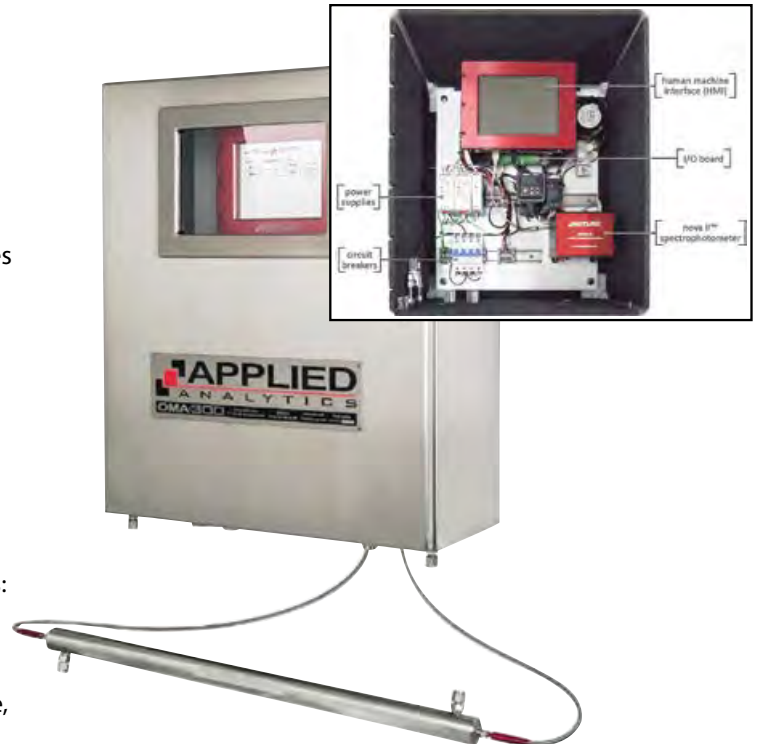
The OMA process analyzer is available in three different models: a wall-mount version, a rack-mount model, and a portable analyzer in a rugged suitcase. It is also available with a NEMA 4X cast aluminum X/Y purged enclosure for explosion-proof ratings.

Some chemicals — carbon dioxide, carbon monoxide, ethylene, methane, and water — cannot be measured in the OMA's spectral range. These measurements can easily be implemented using MicroSpec modules that integrate seamlessly into the OMA.



No chemicals in the analyzer — How it works

- 1 The white light signal originates in the pulsed Xenon lamp.
- 2 The signal travels via fiber optic cable to the flow cell. A collimator narrows the light beam.
- 3 The signal travels directly across the flow cell, interacting with the continuously drawn process sample.
- 4 The signal exits the flow cell through a collimator and travels via fiber optic cable to the spectrophotometer.
- 5 The signal is dispersed by the holographic grating. Each differentiated wavelength is focused onto a designated photodiode within the diode array.
- 6 The absorbance spectrum is measured by plotting the lost light intensity at each wavelength.



Condensed Specifications

Sample Phase: Gas or liquid

Measurement Principle: Dispersive ultraviolet visible (UV-Vis) and short wave near infrared (SW-NIR) absorbance spectrophotometry

Detector: nova II™ diode array spectrophotometer

Spectral Range: 200-800 nm or 400-1100 nm

Light Source: Pulsed xenon lamp (average 5 year lifespan)

Signal Transmission Standard: 600 μ m core 6' fiber optic cable

Sample Introduction Standard: Stainless steel 316L flow cell with application-dependent path length

Repeatability: $\pm 0.5\%$ of scale

Photometric Accuracy: ± 0.004 AU

Spectral Resolution: Average 1 nm

Sample Temperature: Immersion probe or standard flow cell: -4° to 302° F; Optional sample cooling: Up to 1832° F

Sample Pressure: Immersion probe: 1470 psig max.; Standard flow cell: 3000 psi max.

Ambient Temperature: Standard: 32° to 95° F; With optional temperature control: -4° to 131° F; To avoid radiational heating, use a sunshade for systems installed in direct sunlight.

Outputs/Communication: One galvanically isolated 4-20mA analog output per measured analyte (up to 3; available by upgrade); Two digital outputs for fault and SCS control; Optional: Modbus TCP/IP; RS-232; RS-485; Fieldbus; Profibus; HART

Data Storage: 32GB Solid State Drive

Approvals: CSA Class I, Div 1; CSA Class I, Div 2; ATEX Exp II 2(2) GD

Call RAECO for help specifying the right liquid analyzer configuration for your process.

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Rentals: 866-RENT-EHS
Fax: 815-464-8720**GAMAJET Rotary Impingement Tank Cleaning Systems****Gamajet IV GT Automated Tank Cleaning System for Large Tanks****Features**

- For tanks with diameters of more than 15 feet
- Up to 100 pounds of cleaning force
- Cleans up to a 100 ft radius
- Heavy-duty, durable design
- Streamlined turbine and internal flow passages
- Flo-thru and directional options

The Gamajet IV GT tank cleaning machine is a hydraulically driven rotary tank cleaning machine that revolves 360° in both horizontal and vertical planes. Synchronized solid jets provide a tight, thorough scouring pattern covering all interior tank surfaces in one cycle.

It is available in stainless steel or silicon bronze with a choice of oil-lubricated or flow-thru (wash fluid lubricated) gearboxes. Gear trains are designed to maximize wear life for improved reliability.

With a choice of twelve nozzle sizes, hydraulic turbines and stators along with two gear systems, the Gamajet IV GT offers a wide operating range of flow rates, nozzle rotation speeds, and wash cycles. The IV GT is fully capable of high concentration chemical recirculation cleaning or high pressure/low volume water jet scrubbing in fixed CIP automated systems.

Condensed Specifications

Operating Range: Pressure: 20 to 500 psi standard; 20 to >700 psi high pressure model; Temperature: -60° to 250°F

Flow Rate: 30–320 GPM (114 to 1211 l/min)

Cleaning Radius: 100'

Wash Cycle Time: 3 to 30 Minutes

Nozzle Rotation Speed: 2 to 20 rpm

Impact: 85 lbs at 25'

Dimensions: 12.2" tall x 4.2" diam., 6.1" wide; Clearance: 12.7" for dual pin drive, 11.5" for triple pin drive

Castings: 316 stainless steel

Dual Inlet Connection: 2" NPT female and 2 1/2" quick disconnect male

Rotor/Gearbox Shafts: Hardened stainless steel, plasma-sprayed ceramic coating, polished carbide thrust washer

Bearings: Tungsten carbide. PTFE Oilite bronze bearings in flo-thru gearboxes

O-Rings: Viton standard

Drive Gears: Stainless steel alloys; long-life tungsten carbide thrust washers

Lubrication: Gearbox: FDA approved oil;

Flo-thru: Lubricated by the cleaning solution; Waterside: Controlled amount of cleaning solution flows through the tee and nozzle housing bearings for lubrication and cooling.

Self-Cleaning Provisions: Low-pressure bypass keeps bevel gears and other internal parts flushed free of debris

Nozzles: Twelve sizes from 0.177" to 5/8" (4.5 to 15.9mm). Nozzle sizes of 1/4" (6.35 mm) and smaller come with tungsten carbide inserts

Call RAECO for help designing the right tank cleaning system for your process vessels.

Gamajet IV GT Cost-Effective Tank Cleaning for Small Tanks and Totes**Features**

- Cleans small and mid-sized totes and other vessels in under 4-12 minutes
- 12 lbs of cleaning force at 10'
- Compact, durable and easy to maintain
- Capable of removing latex paint from a polyurethane tote

A quantum leap in tank cleaner durability, efficiency, and price, the Gamajet IX offers compact cleaning for small and mid-sized tanks with fewer parts, and a highly durable design, for superior performance at an affordable price, making it the ultimate tote washer. Fewer parts means fewer breakdowns and lower maintenance costs.

Originally designed for tote cleaning applications, the Gamajet IX is also perfect for other small and mid-sized tank cleaning applications. Its 360° spray pattern provides thorough scouring of the entire tank or tote, reducing operating time and costs.

Condensed Specifications

Operating Range: Pressure: 50 to >1000 PSI; Temperature: 32° to 250° F

Flow Rate: 4 to >30 GPM (15.14 to 113.56 l/min)

Cleaning Radius: 7.5'

Wash Cycle Time: 4-15 Minutes

Impact: 12 lbs at 10'

Dimensions: 8.75" tall x 1.80" diam., 2.76" min. I.D. clearance

Construction: Machined from 316L Stainless Steel investment castings or bar stock

Impeller and Final Shafts: Plasma-sprayed with a Chromium Oxide coating on Stainless Steel

Inlet Connection: 3/4" NPT; 1-1/4" Camlock; Tri-clover option

Seals: Static: Viton; Kalrez and EPDM optional; Dynamic: PTFE, spring-loaded, double-lipped. Carbon fiber reinforced

Nozzles: Dual or quad 0.050" to 0.225" orifice diameters standard. Other nozzle sizes available upon request.

Options: Quad nozzles for faster cleaning; Modified version to work with a pressure washer

Products in this catalog are available to rent anywhere in the US. Due to representative agreements with our manufacturer partners, not all products are available for sale in all areas and markets. Prices are current at publication, and are subject to change without notice.

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TransPort PT878 Portable Liquid Ultrasonic Flowmeter



Features

- Small, light weight, and easy to use
- Suitable for most pipe sizes and materials, including lined pipe
- Non-intrusive flow measurement
- Velocity, volumetric, and energy flow rates
- Totalized flow and trend data
- Large backlit LCD display with alphanumeric and graphic formats
- Logs more than 100,000 flow data points
- Rechargeable battery pack
- IP67-rated submersible package
- Options include thickness gauge and energy measurement

Applications

- Potable water, wastewater, cooling and heating water
- Ultrapure water and liquids
- Water/glycol solutions
- Crude oil, diesel and fuel oils, lubricating oils
- Refined hydrocarbons
- Chemicals
- Beverages and other liquids

The TransPort PT878 flowmeter is a self-contained, portable ultrasonic flow metering system. Patented Correlation Transit-Time signal processing provides accurate, drift-free flow measurement in liquids that contain a second phase of entrained solids or gas bubbles. The PT878 is suited for all standard transit-time applications, plus many where other transit-time flowmeters fail.

With the PT878, you'll make your first flow measurement minutes after opening the box. Input site parameters, clamp the transducers onto the pipe, adjust the spacing, and you're ready. The PT878 flowmeter is ideal for survey work. An experienced user can take several different measurements in a single day.

The PT878 flowmeter measures flow rate through metal, plastic, or even concrete-lined pipes without penetrating the pipe wall. It ensures non-contaminating, leak-free measurement with drift-free accuracy. With no moving parts to wear or orifices to clog, it doesn't foul, and needs no routine maintenance.

The LCD display menu walks you through data entry and function selection. Alphanumeric mode shows flow velocity, volumetric or energy flow rates, and totalized flow. The display's graphic mode shows real time and logged data, so you can observe trends while you're on site.

A standard rubber boot protects the flowmeter electronics from vibration and shock.

The sealed housing and ports meet IP67 requirements, and the complete system fits in a compact carrying case.

The PT878 combines ultrasonic flow and temperature measurements to determine the energy flow rate in liquid heating and cooling systems. This energy kit option includes two matched Pt1000Ω surface-mount RTDs and cable to connect to the PT878. An optional thickness gauge provides accurate wall thickness measurement from outside the pipe, providing a critical parameter used by the PT878 for clamp-on flow measurement.

Live measurements, logged data and site parameter scan can be sent to a printer by beaming data from the PT878's infrared port.

Condensed Specifications

Specs assume a fully developed flow profile, typically 10 diam. upstream and five diam. downstream of straight pipe run), flow velocity >1 ft/sec

Parameters: Volumetric flow, totalized flow, and flow velocity

Flow Measurement: Patented correlation transit-time mode

Fluids: Acoustically conductive fluids, clean liquids or liquids with entrained solids or gas bubbles.

Pipe: Sizes: 0.5" to 300" and larger; **Wall Thickness:** Up to 3"; **Materials:** All metal and most plastics. Call RAECO about others.

Range (Bidirectional): -40 to 40 ft/s

Clamp-On Flow Accuracy: *Pipe ID <6": ±2% to 5% reading typical; Pipe ID >6": ±1% to 2% reading typical; Depends on pipe size and whether measurement is one-path or two-path*

Repeatability: ±0.1% to 0.3% reading

Operating Temperature: -4° to 131° F

Standard Inputs/Output: Two 4-20 mA analog inputs with power supply for loop-powered temperature transmitters; One user-selectable pulse (solid state, 5V max) or frequency (5V square wave, 100-10000 Hz) input; One 0/4-20 mA current output 550Ω max load

Data Logging: Logs more than 100000 flow data points, keypad programmable for log units, update times, and start/stop time

Clamp-On Ultrasonic Flow Transducers: *Temperature:* -40° to 302° F standard, -328° to 752° F optional, transducer dependent; *Mounting:* Stainless steel chain or strap, welded or magnetic clamp fixtures

Digital Interface: Infrared port for communication to printer or PC

Internal Battery: Rechargeable, 9-11 hours continuous operation; *Battery Charger Input:* 100-250 VAC 50/60 Hz, 0.38A

Area Classifications: *Electronics:* General purpose; *Transducers:* General purpose, weatherproof Type 4X/IP66 or submersible IP67/68

Thickness Gauge (Option): *Pipe Thickness:* 0.05" to 3"; *Pipe material:* Standard metal and plastic pipes; *Accuracy:* ±1% typical or ±0.002"

Energy Measurement (Option): Calculates energy flow rate and totalized energy. Requires optional energy kit; *Temperature transducers:* Loop-powered, 4-wire PT1000 surface-mount RTDs; *Accuracy:* ±0.12° C; *Range:* 32° to 300° F standard.

Model Selection Guide

Description		Catalog Number	Price
Portable Liquid Ultrasonic Flowmeter		PT-SYS-1-1-	\$5600.00
Case	Standard Soft Shell Case	SC-	0.00
	Hard Shell Case	H-	600.00
Ultrasonic Transducer Kits	None	0-	0.00
	-40° to 302° F Use, 2" to 24" Pipes	A-	1560.00
	-40° to 302° F Use, 6" or Larger Pipes*	C-	1560.00
	-40° to 446° C Use, 1/2" to 2" Pipes	B-	1110.00
	-40° to 446° C Use, 2" to 24" Pipes	F-	2280.00
Accessories	Thickness Gauge	TG	560.00
	Energy Kit (with RTDs and Cable)	E	670.00
	Clamping Fixture	C48	375.00
	I/O Cable	IO	100.00
	USB to IR Converter	IR	132.00
	6-Point Flow Verification Test (NIST)	NIST1	560.00

* Requires extensions for up to 48" lines, or magnetic clamping fixtures for pipes larger than 24".

PanaFlow Z3 Three-Path Ultrasonic Flowmeter for Liquids

Features

- No drifting flow measurement
- No restriction in the pipe
- No maintenance or periodic calibration
- No moving parts, filters, or strainers
- Not affected by temperature, pressure, or conductivity
- Three-path design for $\pm 0.5\%$ accuracy, redundancy, and higher visibility to the flow profile
- Field replaceable transducers for easy maintenance — with no process downtime
- No extended buffers, certified junction boxes, or external cables

Applications

- Process control and monitoring
- Allocation measurement
- Batching and blending
- Transfer lines
- Cooling water



Ultrasonic flowmeters help take care of your assets without the maintenance required with other, non-ultrasonic types of flow meters. Hours saved on maintenance, installation and calibration translate directly to the bottom line. With ultrasonic flow measurement there is no drifting, no pressure drop, no restriction in the pipe and no moving parts — nothing to impact the process or damage the meter.

The PanaFlow Z3 is the latest of a new generation of Panametrics ultrasonic flow meters. It's a three-path wetted meter designed specifically for low-risk, accurate, repeatable measurement of nominal temperature liquids.

The Z3's integrated flow cell encloses the transducers, buffers, junction boxes and cables, making it not just an aesthetic design, but a rugged, compact and easy-to-handle meter. Transducers are removable in the field, so you can replace them easily without shutting down the process. New GE Vitality software is completely intuitive and easy to use.

Three-path technology gives better accuracy and allows for more visibility of the flow profile. It also offers an extra path for peace-of-mind redundancy. New XMT910 electronics, designed for ultra reliability, communicate seamlessly in HART® or Modbus protocol. The integrated transducer system allows for insertion and removal of any of the three pairs of LX transducers without having to isolate the flowmeter or shut down the process.

It offers process and industrial customers ultrasonic benefits and lower cost of ownership than non-ultrasonic flow meters. *"The Z3 gives customers the accuracy they need without the maintenance, installation and calibration costs associated with other flow technologies. Their process can stay up and running without any disruption and in the end, that saves them significant money."*

Condensed Specifications

Fluid Types: Acoustically conductive fluids, including most clean liquids and many liquids with entrained solids or gas bubbles

Flow Measurement: Patented Correlation Transit-Time™ model

Range: -40 to 40 ft/sec, bidirectional

Flow Accuracy: $\pm 0.5\%$ reading for velocities > 1.6 ft/sec (0.5 m/sec); ± 2.5 mm/sec reading for velocities < 1.6 ft/sec

Repeatability: $\pm 0.2\%$ reading

Meter Body and Transducer System

Size: 3" to 8" (80 to 200 mm) meter body

Body Material: Carbon steel or stainless steel

Transducers: LX transducers with inserts, 316 stainless steel construction with FKM or EPDM seals

Temperature Range: -40° to 185°F

Pressure Range: Up to maximum allowable flange operating pressure at temperature

Electronics

Paths: Three paths

Operating Temperature: -40° to 140° F

Keypad: Built-in magnetic six-button keypad for full function operation

Power: 100-240 VAC, 50/60 Hz standard, 12-28 VDC optional

Enclosure: Epoxy-coated, copper-free aluminum

Inputs and Outputs: One analog (4-20 mA + HART®) output, one additional 4-20 mA output, two digital outputs (programmable as pulse, frequency, alarm, or control); Additional outputs are compliant to NAMUR NE 43

Electronics Mounting: Local mounting on meter body

Cable Entries: 3/4" NPT or M20

Approvals: US/Canada Explosion-proof for Class I, Div 1, Groups B-D, IP67; ATEX and IECEx also available

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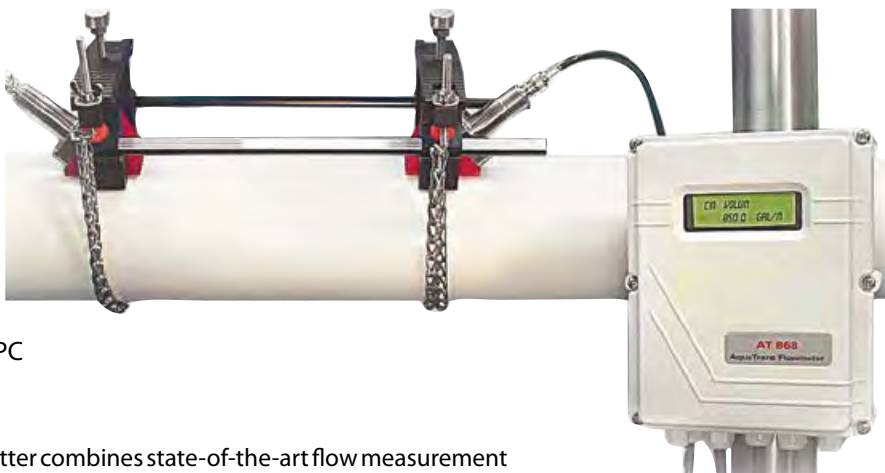
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AquaTrans AT868 Liquid Ultrasonic Flow Transmitter

Features

- Economical non-intrusive flow measurement
- Simple setup and installation
- Suitable for a wide range of pipe sizes and materials, including lined pipes
- Two channel/two path version available
- Velocity, volumetric, and totalized flow
- Internal keypad for field programming
- Weatherproof Type 4X/IP66 enclosure
- Optional serial communications connection to PC



The AquaTrans AT868 liquid ultrasonic flow transmitter combines state-of-the-art flow measurement capability with a low-cost transmitter package that can be installed right at the measurement point.

It's designed specifically for water and wastewater applications in full pipes. An onboard microprocessor uses patented Correlation Transit-Time technology for long-term, drift-free operation.

Ultrasonic flow transducers are classified as either wetted or non-wetted (clamp-on). Wetted transducers are mounted into the process pipe or flow cell, in direct contact with the process fluid. Clamp-on transducers are clamped onto the outside of the pipe, and never come into contact with the fluid.

Clamp-on transducers offer maximum convenience, flexibility, and a low installation cost compared to traditional flow metering technologies. With proper installation, wetted transducers provide maximum accuracy (better than 1% reading) in most applications.

The AT868 is available with an optional second channel, providing the capability to measure flow in two pipes, or average two paths on the same pipe for increased accuracy.

Applications

- Potable water
- Wastewater and sewage
- Discharge water
- Treated water
- Heating and cooling water
- Other liquids

Condensed Specifications

Specifications assume a fully developed flow profile, typically 10 diameters upstream, 5 diameters downstream of straight pipe run, and flow velocity greater than 1 ft/sec

Measurement Parameters: Flow velocity, volumetric flow, totalized flow

Fluid Types: Acoustically conductive fluids, including most clean liquids and many liquids with entrained solids or gas bubbles

Range: -40 to 40 ft/sec, bidirectional

Pipe Sizes: *Clamp-on transducers:* 0.5" to 30" and larger; *Wetted transducers:* 1" to 200" and larger

Pipe Wall Thickness: Up to 3"

Pipe Materials: All metals and most plastics. Consult RAECO for concrete, composite materials, and highly corroded or lined pipes

Flow Accuracy: 0.5% reading, achievable with process calibration

Typical Clamp-On Flow Accuracy: *Pipe ID < 6":* ±2% to 5% reading; *Pipe ID > 6":* ±1% to 2% reading

Typical Wetted Flow Accuracy: ±1% reading

Repeatability: ±0.1% to 0.3% reading

Wetted Ultrasonic Flow Transducers

Temperature Range: -40° to 212° F

Pressure Range: 0 to 300 PSIG

Materials: Stainless steel standard, optional titanium, hastelloy, Monel, duplex, CPVC, PVDF, and others

Process Connections: 1" or 3/8" NPTM standard; Optional RF flanged, socket weld, fuse bond, and others

Mountings: Flanged flow cell, hot tap or cold tap

Area Classifications: General purpose standard, optional weatherproof Type 4/IP65 or submersible IP67/68

Clamp-On Ultrasonic Flow Transducers

Temperature Ranges: -40° to 302° F standard, -328° to 752° F optional, varies by transducer

Mountings: Stainless steel chain or strap, welded or magnetic clamping fixtures

Area Classifications: General purpose standard, optional weatherproof Type 4/IP65 or submersible IP67/68

Transmitter Electronics

Flow Measurement: Patented correlation transit-time mode

Enclosure: Epoxy-coated aluminum, weatherproof Type 4X/IP66

Channels: One channel standard, two optional for two pipes or two-path averaging

Keypad: Six-button internal keypad

Display: Two line x 16-character backlit LCD display, configurable to display up to four measurement parameters in sequence

Power: 85–265 VAC 50/60 Hz standard, optional 12–28 VDC ±5%

Operating Temperature: 14° to 131° F

Interfaces: RS232 standard, RS485 optional

Standard Outputs: One 0/4–20 mA isolated output per channel, 600Ω max load; One frequency/pulse rate/totalizer output per channel, optically isolated, 3A max, 100 VDC max, 1W max, from 0.1 to 10 kHz

Software: Optional PanaView™ PC interface software for serial communication to a Windows® computer

**Learn more about GE flowmeters at RAECO.com
Call for pricing.**

AquaTrans AT600 Single Channel Ultrasonic Liquid Flowmeter

Features

- Non-intrusive flow measurement for less than \$2500
- Simple, quick setup and installation — About 30 minutes to unpack, install, and program
- Works with a wide range of pipe materials, even for lined pipes, in sizes from 2" to 24"
- No drifting readings, moving parts, or pressure drop
- Clamp-on installations with new more powerful ultrasonic transducers, improved performance with no risk of leaks
- Permanent solid couplant for clamp-on applications.

GE's Panametrics AquaTrans AT600 ultrasonic liquid flow transmitter can be installed right at the process measurement point. The AT600 is designed specifically for water and wastewater applications in full pipes, but works with various acoustically conductive liquids. Fluid types include most clean liquids and many liquids with small amounts of entrained solids or gas bubbles.

The all-digital AquaTrans AT600 has no moving parts and requires minimal maintenance. An onboard microprocessor uses patented Correlation Transit-Time™ technology for long-term, drift-free operation. Automatic adjustment to changing fluid properties and dynamically configured operating software simplify programming.

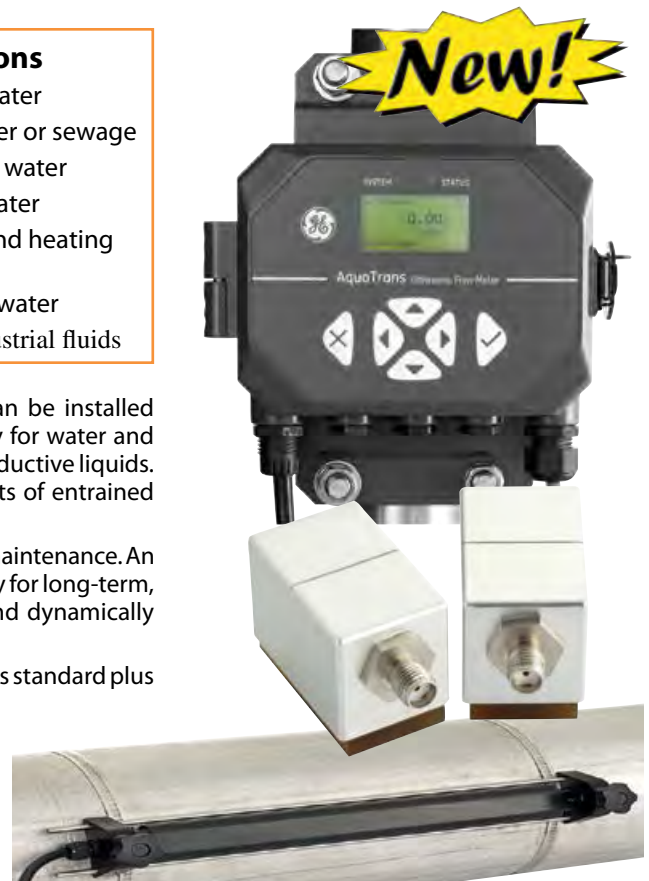
The flow transmitter offers 4-20 mA analog output plus two discrete outputs standard plus optional Modbus RS485 and HART® communications optional. The front face has a six-button keypad and a graphic LCD display. The hinged front panel can be locked to prevent tampering.

Newly designed clamp-on transducers offer maximum convenience, flexibility and a low installation cost compared to traditional flow metering technologies. These compact 1- or 2-MHz frequency transducers are about 1.33" in size, and come in IP68 rated enclosures. With proper installation, clamp-on transducers provide better than 1% of reading accuracy in most applications.

With pre-installed transducers, easy-to-read spacing markings, and quick-tightening stainless strapping, your AT600 sensors can be on the pipe and ready for operation in less than five minutes.

Applications

- Potable Water
- Wastewater or sewage
- Discharge water
- Treated water
- Cooling and heating water
- Irrigation water
- Other industrial fluids



System includes: Single channel weatherproof flow transmitter electronics, clamp-on ultrasonic transducers, transducer cable, transducer rail mount couplant, and traceable calibration certificate

Specifications

Fluid Types: Acoustically conductive fluids, including most clean liquids, and liquids with small amounts of entrained solids or gas bubbles

Flow Measurement: Patented Correlation Transit-Time™ model

Measurement Parameters: Velocity, Volumetric, and Totalized Flow

Pipe Sizes: 2" to 24" standard, other sizes available upon request

Pipe Materials: All metals and most plastics. Call RAECO for concrete, composite materials, and highly corroded or lined pipes

Accuracy: ±1% reading in application; ±0.5% in field calibration; *Installation assumes a fully developed, symmetrical flow profile (typically 10 diameters upstream and 5 diameters downstream of straight pipe run). Final accuracy is a function of multiple factors including fluid, temperature range, and pipe centrality.*

Repeatability: ±0.2% of reading

Range: -40 to 40 ft/sec, bidirectional

Rangeability: 400:1 overall

Electronics

Channels: One channel

Display: 128 x 64 pixel graphic LCD with green or red light error display indicator

Keypad: Six-button keypad, for full functionality operation

Operating Temperature: -4° to 131°F

Outputs: NAMUR NE43 compliant analog outputs, 4-20 mA (24 VDC powered, 600Ω max load); Frequency, Pulse, Alarm (Passive output, 100VDC, 1A/1W max); HART v7.5; Modbus/RS485 (Half-duplex)

Vitality™ PC Interface Software (Optional): AquaTrans AT600 communicates with a PC via Vitality interface program for managing sites, viewing logs, and performing other operations

Power Supplies: 85-265 VAC, 50/60 Hz standard; 12 to 28 VDC, ± 5% optional

Enclosure: Epoxy-coated aluminum weatherproof Type 4X/IP67, mounts easily on a wall or 2" pipe

Calibration: All meters are water calibrated and delivered with a traceable calibration certificate.

Approvals: CE, UL, CSA, MCert

Clamp-On Ultrasonic Flow Transducers

Temperature Ranges: -40° to 302°F standard, -328° to 752°F optional

Operating Frequency: 1 or 2 MHz

Mounting Fixture: Anodized aluminum with stainless steel strapping

Couplant: Solid couplant standard

Rating: General purpose (IP66 or IP68) standard. Exact spec varies by transducer.

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DigitalFlow DF868 Liquid Ultrasonic Energy Meter

Features

- Economical, non-intrusive flow measurement
- Hazardous (classified) location certification
- Suitable for a wide range of pipe sizes and materials
- Two-channel/two-path version available
- Energy measurement option
- Velocity, volumetric and energy flow rates
- Totalized flow and trend data

GE's DigitalFlow DF868 is a full-featured field-mounted liquid flow meter. Patented Correlation Transit-Time™ signal processing provides drift-free measurement in ultra-clean and most "dirty" liquids, even those with gas bubbles and entrained solids that historically required the use of Doppler-type meters.

A dual-channel/dual-path model can be configured to measure flow in two separate pipes with a single meter, to reduce the cost-per-measurement point. Two sets of transducers can be installed on the same pipe to minimize the effects of flow profile distortions, flow swirl and cross flow, and to provide maximum accuracy.

Access to the data you need

Whether single-or dual-channel, all DF868 meters feature two independent graphic LCDs, programmable to fit your application.

Choose from numerical display of real time flow measurements, real time flow graphs and diagnostic waveforms, and numerical/graphic display of data from the meter's built-in 43,000-point datalogger.

For further functionality, you can add up to 12 isolated 4–20 mA outputs, up to six hermetically sealed or standard alarm relays, and up to 12 frequency/totalizer outputs.

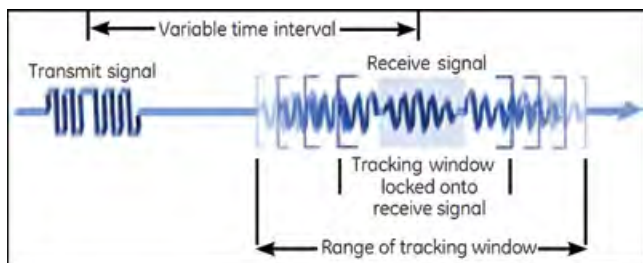
Built-in energy measurement capability

One feature that makes the DF868 even more powerful is the energy measurement software that comes standard in every meter. Add optional RTDs and input boards to measure both flow and temperature without pipe penetration, in pipe diameters from 1" to 200".

The DigitalFlow DF868 meter measures energy flow in water and water/glycol heating and cooling systems with temperatures from -4° to 410° F. Call RAECO for use with other liquid systems.

Adjusting to changing fluid properties

GE's unique Automatic Tracking Window™ (ATW) feature — standard in all DigitalFlow DF868 meters — ensures accurate flow measurements, even when fluid properties are unknown or changing. ATW dynamically sweeps the receiver window whenever the sound speed of the fluid changes. This enables flow measurement when the fluid sound speed is unknown, when it changes due to large temperature shifts, or when a new liquid starts to flow in a multiproduct pipeline.



Measure flow from inside or outside the pipe

Using clamp-on transducers, the DigitalFlow DF868 measures flow rate through metal, plastic or even concrete-lined pipes without penetrating the pipe wall. The benefits to clamp-on transducers are many — no plugged impulse lines, no pressure drop, and the ability to install sensors while the process unit is in operation.

To hold clamp-on transducers in place, GE provides clamping fixtures that accommodate different pipe sizes, transducer types and attachment methods. The universal clamping fixture includes ruled slide tracks to simplify transducer spacing for accurate flow measurements, even for transducers on 0.5" to 2" process lines.

Clamp-in wetted transducers can be attached to the inner wall of larger pipes, and come with dual element heads for 100% redundancy.

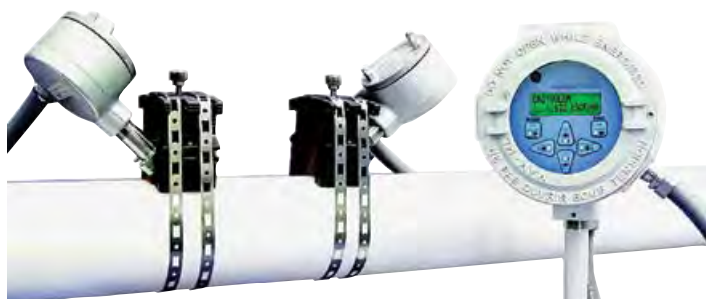
Precision laser alignment during installation ensures the transducers will work flawlessly. With proper installation, it's possible to achieve transit-time accuracies of better than 1% in most applications, matching the performance of expensive factory-calibrated meters.

For pipes from 1" to more than 200" in diameter, the measurement range is 0.1 to 40 feet/second, with a turndown ratio of 400:1. Measurement is non-contaminating, obstruction-free, and causes no pressure drop.

The GE DigitalFlow DF868 is all digital, so measurements don't drift. And, since there are no moving parts to wear out or orifices to clog, it won't need regular maintenance.

Applications

- Water and wastewater
- Hot or chilled water
- Water/glycol solutions
- Refined hydrocarbons
- Petroleum products
- Crude oil, lubricating oil, diesel and fuel oils
- Chemicals and solvents
- Other liquids



Learn more about GE
flowmeters at RAECO.com
Call for pricing.

General Specifications

Specifications assume a fully developed flow profile (typically 10 diameters upstream and 5 diameters downstream of straight pipe run) and flow velocity greater than 1 foot/second.

Flow Measurement: Patented Correlation Transit-Time mode

Measurement Parameters: Flow velocity, volumetric flow, totalized flow

Fluid Types: Acoustically conductive fluids, including most clean liquids, and many liquids with entrained solids or gas bubbles. (Maximum void fraction depends on transducer, interrogation carrier frequency, path length and pipe configuration.)

Measurement Range: -40 to 40 feet/second, bi-directional

Rangeability: 400:1

Pipe Sizes: Using clamp-on transducers: 0.5" to 300" and larger; Using wetted transducers: 1" to 200" and larger

Pipe Wall Thickness: 3" max.

Pipe Materials: All metals and most plastics. Call RAECO for concrete, composite materials, and highly corroded or lined pipes.

Flow Accuracy (Velocity): $\pm 0.5\%$ reading (achievable with process calibration); *Typical Clamp-On Flow Accuracy:* Pipe ID $\leq 6"$: $\pm 2\%$ to 5% reading; Pipe ID $> 6"$: $\pm 1\%$ to 2% reading; *Typical Wetted Flow Accuracy:* $\pm 1\%$ reading; Accuracy depends on pipe size, installation and whether measurement is one-path or two-path.

Repeatability: $\pm 0.1\%$ to 0.3% reading

Input Channels: One channel standard, two channels optional for two pipes or two-path averaging

Power Supply: 100 to 130 VAC, 50/60 Hz or 200 to 265 VAC, 50/60 Hz

Operating Temperature: -4° to 131° F

Outputs (Standard): Two 0/4 to 20 mA isolated outputs standard, 550 Ω maximum load NAMUR NE043 compliant; There are six additional slots available for any combination of I/O boards:

Analog Outputs (Option): Three additional output boards, each with four isolated 0/4 to 20 mA outputs, 1000 Ω maximum load

Analog Inputs (Option): Select up to three boards: Two isolated 4 to 20 mA inputs and 24 V loop power, RTD input board with two isolated, three-wire, 100 Ω RTD inputs; span -148° to 662° F

Totalizer/Frequency Outputs (Option): Select up to three boards, four outputs per board, 10 kHz max. All boards allow software-selectable functioning in totalizer or frequency mode. *Totalizer mode:* Pulse per defined unit of parameter; *Frequency mode:* Pulse frequency proportional to magnitude of parameter

Alarm Relays (Option): Select up to two boards of the same type: *General purpose:* Relay board with three Form C relays; 120 VAC, 28 VDC max, 5A max; 30 W DC max, 60 VA AC; *Hermetically sealed:* Relay board with three hermetically sealed Form C relays; 120 VAC, 28 VDC max, 2A max, 56 W DC max, 60 VA AC

Electronics Enclosure: Standard epoxy-coated aluminum weatherproof Type 4X/IP66 Class I, Div 2, Groups A-D; Optional stainless steel, fiberglass, explosion-proof or flame-proof housing

Display: Two independent software-configurable 64 x 128-pixel backlit LCD graphic displays for numerical or graphical data

Keypad: 39-key tactile feedback membrane keypad

Power Consumption: 20 W max

Digital Interfaces: RS232 standard; RS485, Modbus RTU, Modbus TCP, OPC server, Ethernet optional

Data Logging: Memory capacity (linear and/or circular type) to log more than 43,000 flow data points

Communications: Serial communications to a PC with Windows operating system, uses PanaView™ PC interface software

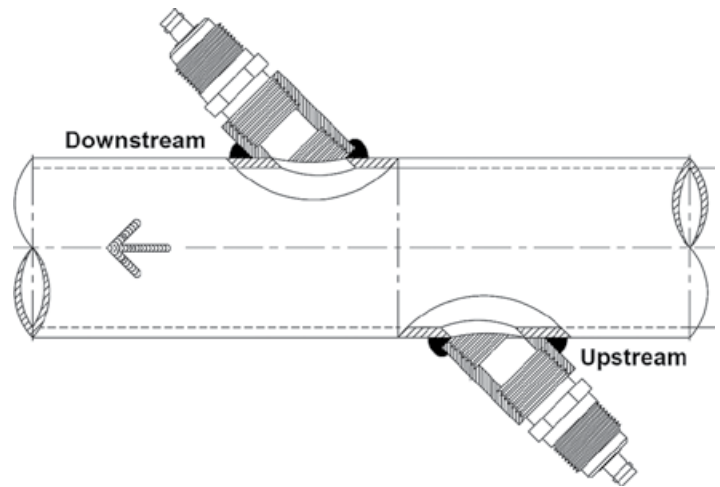
Energy Measurement

Function: Calculates energy flow rate and totalized energy usage.

Requirement: Requires optional RTD or analog inputs to the DF868 with two temperature inputs: one for supply and one for return temperature.

Installation: Typical installations use surface mount RTDs with integrated 4-20 mA transmitters, but wetted RTDs with thermowells are available if more accuracy is required and if the line can be shut down for installation.

Surface Mount RTDs: Pt1000 Ω , 4-wire, matched pair with integrated 4-20 mA transmitters; Range: 32° to 122° F or 32° to 302° F



Wetted Ultrasonic Transducers

Temperature Ranges: -40° to 212° F standard; -310° to 1112° F optional

Pressure Ranges: 0–3000 PSIG standard; Higher pressures available on request

Materials: Stainless steel standard; Optional Titanium, Hastelloy, Monel, and duplex; Pan-Adapta plugs allow installation and removal of wetted transducers without interruption the process or emptying the pipe

Process Connections: 1" or 3/8" NPTM standard; Also available with RF flange, socket weld, fuse bond, or others

Mounting: Flanged flow cell, hot tap or cold tap

Area Classifications: General purpose standard; Also available with Weatherproof Type 4X/IP65; Explosion-proof Class I, Div 1, Groups C–D; Class II, Groups E–G; Class III; Flameproof II 2 G EEx d IIC T6; or submersible

Clamp-On Ultrasonic Flow Transducers

Temperature Range: -40° to 302° F standard; -328° to 752° F optional; See specific transducer for exact temperature range

Mountings: Stainless steel chain or strap, welded or magnetic clamping fixtures

Area Classifications: General purpose standard; Also available with Weatherproof Type 4X/IP66; Explosion-proof Class I, Div 1, Groups B–D; Class II, Groups E–G; Class III; Flameproof Ex II 2 G EEx md IIC T6-T3; or submersible

Transducer Cables: One pair of coaxial cables, type RG62 AU, or as specified for transducer type. Lengths up to 1,000 ft (330 m) maximum



578 **RAECO** V 04.2015RAECO LIC-LLC
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Rentals: 866-RENT-EHS
Fax: 815-464-8720

DigitalFlow GF868 Flare Gas Mass Ultrasonic Flowmeter



Features

- Measures velocity, volumetric and mass flow
- Velocity range to 328 ft/sec standard, 394 ft/sec extended
- Measures instantaneous average molecular weight
- Minimal maintenance — no moving parts, no holes or tubes, tolerant to dirty and wet conditions
- Measures hydrocarbon gases
- Built-in totalizers, built-in power supply for pressure and temperature transmitters
- 3940:1 turndown ratio
- One- or two-channel/path configurations

Applications

- Track down or prevent losses from leakage with positive material ID
- Account for total plant material throughput
- Reduce cost of steam usage with proportional control
- Conserve energy by eliminating unnecessary flaring
- Comply with government regulations for pollution control
- Also measures vent gas

The DigitalFlow GF868 ultrasonic flowmeter uses patented Correlation Transit-Time technique, digital signal processing, and an accurate molecular weight calculation to provide you reliability and high accuracy with no routine maintenance required.

Typically, gas in flare stacks, headers, or laterals is a mixture of components from different sources. Flow rate in flare systems can be unsteady and even bidirectional. Pulsating pressure, varying composition and temperature, harsh environment, and wide flow range further complicate these measurements. Correlation transit-time measurement provides superior performance under these conditions.

The all-metal ultrasonic transducers installed in the pipe send sound pulses upstream and downstream through the gas. The GF868's onboard computer uses advanced signal processing and correlation detection to calculate velocity and volumetric and mass flow rate. For maximum accuracy, the two-channel version measures along two paths at the same location.

Condensed Specifications

Measurement Parameters: Mass flow, standard and actual volumetric flow, totalized flow, molecular weight, speed of sound, flow velocity

Measurement Type: Correlation transit-time mode

Fluid Types: Flare and vent gases

Pipe Materials: All metals and fiberglass

Pipe Sizes: 2" to 14" diagonal 45°, 16" to 120" bias 90°

Range: -328 to 328 ft/sec, bidirectional

Accuracy: Flow: ± 1 to ± 328 Ft/sec: ± 2 –5% one path, ± 1.4 –3.5% two path; 0.1 to ± 1 ft/sec: ± 0.15 in/sec one path, ± 0.12 in/sec two path; Molecular weight: 2 to 120 gr/gr mole hydrocarbon mixtures; Mass flow: 3 to 7% one path, 2.4 to 5% two path

Standard Inputs/Outputs: Two isolated 0/4–20 mA inputs with 24 VDC power; Six 4–20 mA output, two with 550 Ω max load, four with 1000 Ω max load; NAMUR NE43 compliant

PanaFlow HT Ultrasonic SIL Liquid Flowmeter

- For coker crude or vacuum distillation, crackers, hydrotreaters, visbreakers, crude oil, and liquefied natural gas
- No drifting flow measurement
- No maintenance or periodic calibration required
- No restriction in the pipe
- Reliable measurement by design (IEC 61508 certification pending)
- Flow measurement in extremely low (-328°F) or high (1112°F) temperature applications
- Bidirectional measurement

PanaFlow HT —the first SIL-rated ultrasonic flowmeter on the market — measures liquids in either nominal or extremely high or low process temperatures. As a safety flowmeter, or coker flowmeter, the PanaFlow HT is designed for use in safety-critical applications where reliability ensures reduction in risk to personnel, plant assets, the environment, and to your corporate reputation.

The PanaFlow HT is a wetted ultrasonic flowmeter gives you confidence in your flow measurement, providing reliable flow meter operations for both safety and process control systems.

The PanaFlow HT system consists of the new XMT900 electronics, a bundle waveguide transducer (BTW) system, and a meter body. The meter body comes in a variety of configurations for pipe sizes up to 16" standard, and is available in several materials and finishes.



Condensed Specifications

Fluid Types: Acoustically conductive liquids, including most clean liquids and many liquids with small amounts of entrained solids or gas bubbles

Meter Sizes: 3" to 16" standard, sizes to 36" available on request

Range: 0.1 to 40 ft/sec, bidirectional

Accuracy: ± 0.5 % to ± 0.9 % reading, depending on meter size, flow range

SIL Certification: IEC 61508 (pending, SIL2 certification with single design system, SIL3 certification with redundant design system)

Meter Body: Carbon steel, stainless steel, and 9Cr-1Mo

Flow Transducer: Bundle waveguide technology, 316L SS transducer and holder; **Temperature:** -310° to 600° standard, -310° to 1112°F high temperature liquids; **Approvals:** Explosion-proof Class I, Div 1, Groups B–D, ATEX Flameproof II 2 G Ex d IIC T6, IECEx Flameproof Ex d IIC T6

DigitalFlow GS868 Ultrasonic Steam Mass Flowmeter

Features

- Non-obstructive flow measurement
- No moving parts, low maintenance
- No pressure drop
- Wide rangeability with 1500:1 turndown ratio
- Tolerant to dirty streams, high temperatures
- Two-path measurement for maximum accuracy

GE's DigitalFlow GS868 steam ultrasonic flowmeter measures the mass flow rate of saturated or superheated steam. Conventional steam flowmeters cause a permanent pressure drop and have limited rangeability, wasting time and money. Since the DigitalFlow GS868's transducers do not obstruct the flow, they don't cause pressure drop. Plus, it has no parts that foul or collect debris, and no moving parts to wear out. So, the GS868 requires no lubrication, cleaning or routine maintenance.

The GS868 flowmeter system consists of one or two pairs of transducers, preamplifiers and an electronics console. The transducers can be installed as part of a flowcell, or installed directly into the existing pipeline. The electronics console can be mounted up to 500 feet from the transducers.

For maximum accuracy, use a two-channel meter to measure along two different paths at one location. A two-channel meter can also measure the flow in two separate pipes for added cost savings.

In addition to velocity, volumetric and mass flow data, the DigitalFlow GS868 provides diagnostic parameters such as transit times and sound speed, to aid in setup and troubleshooting. Any of this data can be easily printed, logged, sent to an analog or digital output, or read in numeric or graphic format on the dual window display.

The DigitalFlow GS868 flowmeter makes it easy to send the data where it needs to go, through digital or analog outputs, or optional alarms.

Rugged Field-Mount Transmitter Version Available

If you'd prefer a more rugged field-mount transmitter for Class I, Div 1 environments the DigitalFlow XGS868i offers the same functionality in a field-hardened enclosure.

Applications

- Ventilation systems (HVAC)
- Pneumatic power systems, electric power generation, and public works
- Water purification and distillation
- Chemical and petrochemical
- Food and beverage industries
- Steel industry



Condensed Specifications

Fluid Types: Saturated and superheated steam

Flow Measurement: Patented Correlation Transit-Time mode

Pipe Sizes: 2" to 48" nominal bore

Pipe Materials: All metals. Call RAECO for others.

Range: -150 to 150 ft/s bidirectional

Flow Accuracy (Velocity): $\pm 1\%$ to 2% of reading typical; *Repeatability:* $\pm 0.2\%$ to 0.5% of reading

Rangeability (Overall): 1500:1

Measured Parameters: Mass flow, standard and actual volumetric flow, totalized flow, and flow velocity

Electronics

Operating Temperature: -4° to 131°F

Pressure Ranges: 0 to 2700 psig standard; 3480 psig max optional

Enclosures: *Standard:* Epoxy-coated aluminum weatherproof Type 4X/IP66, FM/CSA Class I, Div 2, Groups A-D; *Optional:* Stainless steel, fiberglass, explosion-proof, flameproof, ISSep 03ATEX113

Channels: One channel standard; Two optional for two pipes or two-path on one pipe

Keypad: 39-key tactile-feedback membrane keypad for on-site parameter programming

Display: Two independent software-configurable 64 x 128 pixel backlit LCD graphic displays; Functions: Graphic display shows flow in numerical or graphic format; Shows logged data and diagnostics

Input/Output (Standard): Two 0/4 to 20 mA isolated outputs, 550 Ω max load

Input/Output (Options): Six additional slots for any combination of I/O boards: *Analog outputs:* Four isolated 0/4–20 mA outputs; *Analog input:* Two isolated 4–20 mA inputs and 24 V loop power; *RTD input:* Two isolated, three-wire, RTD inputs, span -148° to 662°F ; 100 Ω ; *Totalizer/frequency outputs:* Pulse per defined unit of parameter or pulse frequency proportional to magnitude of parameter; *Alarm relays:* General purpose or Hermetically sealed

Data Logging: Memory capacity to log more than 43,000 flow data points

Transducer Construction: Titanium or stainless steel standard

Area Classifications: *Standard:* Weatherproof Type 4/IP65; *Optional:* Explosion-proof Class I, Div 1, Groups C&D, Flameproof II 2 G EEx d IIC T6

Additional Options

Digital Interfaces: RS232 Standard; *Options:* RS485, Modbus[®] RS485 or TCP, Ethernet, OPC server

PanaView PC-Interface Software: Communicates with a Windows[®] PC through a serial interface

Portable Instruments
Industrial Hygiene

Portable Instruments
Safety

Fixed Instruments
Gas Detection/Monitoring

Fixed Instruments
Analytics

Flow

RAECO Rents

580



V 04.2015

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PORTABLE INSTRUMENTATION RENTALS

V 04.2015



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Products in this catalog are available to rent anywhere in the US. Due to representative agreements with our manufacturer partners, not all products are available for sale in all areas and markets. Prices are current at publication, and are subject to change without notice.

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Rental Service That Treats You Right...

RAECO Rents is here to help you fulfill your most important objectives. First, to get the instrumentation you need, when you need it. Second, to get instrumentation that works. Third, to make sure you can use the instruments to their fullest capability. We want you to have a great experience working with RAECO Rents!

Free Round-Trip Ground Shipping!

Free round-trip UPS Ground shipping on every rental one week or longer in duration. If you need the rental faster than Ground shipping allows, you only pay the difference for the upgraded delivery to your location (the Ground return is still free). Good on qualifying rentals booked and shipped thru Dec. 31, 2013, and shipped from the RAECO Rents service locations.

RAECO Rents Instant-On Guarantee

If our equipment doesn't arrive in working order, your rental is FREE for as many days as it takes us to get you a working unit. So, if we ship you a unit that doesn't work out of the box, and the replacement takes two days to arrive, you won't pay for those two days — and we'll add two free rental days to make up for any lost time.

Get your rental late? Let us know. If your rental equipment has been held up by bad weather, issues with the carrier, or other factors beyond our control, call us. We'll adjust the rental period to satisfy your requirements (and you won't be charged for the additional time.)

Easy Return Procedures

We include a return shipping label and packing tape in every rental kit for easy rental return. If we need the rental back sooner, we may ask you to use a priority label that we generate at our cost. You just stick the label on the box and drop it off at any one of UPS's 40,000 drop points. Visit UPS.com to find the UPS location closest to you.

After-Hours Support

If you rent from us and need support during non-business hours (8am–5pm CST), call 866-736-8347 x2000, and leave us a message. Our on-call rental technician will call you back as soon as possible.

Buy Gently Used Instruments on eBay!

Using an instrument more often than it'd make sense to rent? Short on the budget needed to buy a brand new unit? Are you in the market for gently used instrumentation? Check out RAECO Rents' new eBay store! We sell gently used units out of our rental pool to help customers balance their demand and budgetary needs.

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Aerosol Particulate Counters and Concentration Monitors



TSI DustTrak™ DRX for Mass Concentration and Total PM Size

TSI 8533 Desktop Unit

D	W	M
\$150.00 Daily	\$425.00 Weekly	Call Us!

TSI 8534 Handheld Unit

D	W	M
\$150.00 Daily	\$425.00 Weekly	Call Us!

DustTrak DRX 8533 rental kit includes desktop unit, rechargeable 6600 mAh Lithium Ion battery x 2, switching power supply with universal line cord, zero filter, TrakPro data analysis software CD, USB computer cables, inlet caps, HEPA filters, calibration impactor kit with PM2.5 impactor, two impactor plates, impactor oil, 37mm cassette with mesh filter, stylus, 3' sample extension tube, filter removal tool, user manual, calibration certificate, and carrying case.

DustTrak DRX 8534 rental kit includes handheld unit, rechargeable 3600 mAh Lithium Ion battery, switching power supply with universal line cord, zero filter, inlet caps, USB computer cables, impactor kit with oil, PM2.5 impactor and impactor plate, screwdriver, three-foot sample extension tube, sheath air HEPA filters, filter removal tool, stylus, TrakPro data analysis software CD, user manual, calibration certificate, and carrying case.

DustTrak™ II for Mass Concentration of Aerosols



Functional replacement for the retired TSI 8520

TSI 8530 Desktop Unit

D	W	M
\$100.00 Daily	\$300.00 Weekly	Call Us!

DustTrak II 8530 kit includes desktop unit, rechargeable 6600 mAh Lithium Ion battery, switching power supply with universal line cord, zero filter, TrakPro software CD, USB computer cables, analog, inlet caps, 10mm Nylon Dorr-Oliver cyclone, impactor kit with PM1, PM2.5, PM4, and PM10 impactors, two impactor plates, impactor oil, sheath air HEPA filters, 3' sample extension tube, two 37mm cassettes with screen, stylus, filter removal tool, user manual, calibration certificate, and carrying case.



TSI 8535 Weatherproof Enclosure for DustTrak™ Monitors

Protect your dust monitor rental from rain, wind, and bad weather.

TSI 8535 Field Enclosure

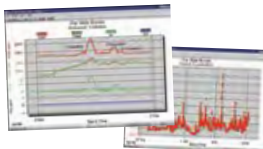
D	W	M
\$50.00 Daily	\$95.00 Weekly	Call Us!

DustTrak 8535 rental kit includes weatherproof case with survey tripod mount, 360° sampling inlet, water trap bottle, dust caps, internal equipment bracket with Velcro straps, tubing, plug, O-rings, weatherproof AC/DC adapter, internal battery system, USB cable, universal power supply, modem configuration software CD and user manual. Rent the 933MHz wireless radio modem kit, dipole antenna, and charger separately.

TrakPro™ Software Included!

All rentals for TSI products compatible with TrakPro data analysis software include the CD! Download the latest TrakPro version from RaecoRents.com

TrakPro complies to FDA 21 CFR Part 11 by offering secure and reliable data collection and classification for the AeroTrak® handheld and portable airborne particle counters, as well as the BioTrak® real-time particle counters. Unique user names and passwords, audit trail, password aging, and lockout after failed logins, means secure, tamper proof data transfer. Assigned security privileges control access and activity.



SidePak™ AM510 Intrinsically Safe Personal Aerosol Monitor

Kit includes soft single-unit carrying case, 115/230VAC power supply/charger, extended run NiMH battery + AA Alkaline battery pack, line power cord, impactor kit, cyclone kit, screwdriver, TrakPro™ data analysis software CD, USB cable, zero filter, sample tube, user guide, battery maintenance card, calibration certificate, and quick reference card.

AM510 Aerosol Monitor

D	W	M
\$75.00 Daily	\$220.00 Weekly	Call Us!



pDR-1000AN DataRAM Personal Aerosol Monitor



Kit ships with soft shell carrying case, digital communications cable Z-pouch zeroing kit, belt clip kit, AC power supply, battery charger, analog output cable, communications software, 20-hour 9V battery, and calibration certificate.

pDR-1000AN

D	W	M
\$75.00 Daily	\$200.00 Weekly	Call Us!

See more personal sampling pumps on page 581.



AeroTrak 9306 Optical Particle Counter

Choose your model:

9306-01: Six fixed bin sizes 0.3–5µm
9306-V2: Six adjustable bin sizes 0.3–10µm

AeroTrak 9306-01 or V2

D	W	M
\$70.00 Daily	\$210.00 Weekly	Call Us!

9306-01 ships with isokinetic inlet, purge filter, rechargeable Lithium Ion battery, power supply, zero HEPA filter, inlet cap, USB cable, TrakPro Lite download software, stylus, manual, quick-start guide, calibration certificate, and carrying case.

9306-V2 ships with 9306-01 kit contents plus isokinetic hose barb and tubing.



P-Trak® 8525 Ultrafine Particle Counter

Particle sizes <1µm

Ships with tube, sample probe, shoulder strap, inlet screen, spare wicks, alcohol fill capsule, storage cap, cartridge, four 30ml bottles isopropyl alcohol, two zero filters, TrakPro software, USB cable, DB9/DB25 serial adapter, battery holder, six AA batteries, carrying case, calibration certificate, and manual.

P-TRAK 8525

D	W	M
\$100.00 Daily	\$315.00 Weekly	Call Us!

3M Quest EVM-7 Particulate/Air Quality Monitor



Kit includes base model with PID sensor, CO2 sensor, CO sensor, two 37mm gravimetric filter cassettes, 12 VDC universal power supply, USB cable, impactor grease, PID cleaning kit, pump protection filters, dust zero calibration filter assembly, toxic calibration adapter, user manual, QuestSuite Pro II software, calibration certificate, and carrying case.

EVM-7/CO

D	W	M
\$150.00 Daily	\$300.00 Weekly	Call Us!

Perimeter Monitoring Kits

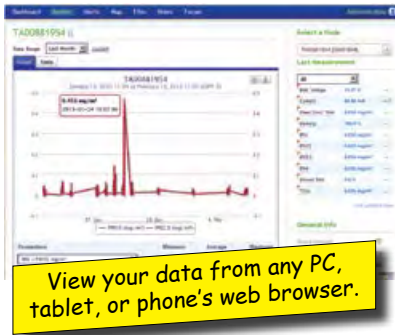
RAECO Rents offers complete ready-to-place kits for monitoring environmental dust exposure for community air monitoring programs, local, state, and federal air quality control programs, and more.

We've simplified the process of renting perimeter environmental air quality and dust monitoring systems, by pre-configuring a kit that includes all the parts you need: a dust particulate monitor, power supply, wireless data radio, weather-safe enclosure, tripod, and a weather station.

Order as few or as many as you need to accurately cover the perimeter of your working environment. Depending on your application, you may want to order a kit with an attached weather station for monitoring temperature and humidity change, wind speed, and wind shifts.

When you order a perimeter monitoring system from RAECO Rents, you'll get access to our secure data center, where you'll be able to see real-time results from your monitoring kit and generate reports using your PC, tablet, or cell phone.

With a short training and setup call, you'll be able to install the equipment in the field, and start accessing real-time data over a secure web portal from your web browser (tested to work on PCs, IOS and Android tablets and mobile phones).



Rent a Perimeter Monitoring System

Want to learn more? Take this shortcut to our website:
mobibrix.com/H4DC5G

Click on "Get a Quote" and fill out the details of your application. We'll configure the number of units you need with all components.



(1) Monitor particulate around your perimeter. (2) Real-time results transfer wirelessly to a secure data center. (3) View, analyze, and prepare reports directly from your desktop, laptop, or mobile device using a standard web browser.

Key Specifications

- TSI DustTrak II 8530 measures aerosol particulate concentrations to PM10, PM2.5, PM1.0 or respirable size fraction
- TSI 8535 DustTrak environmental enclosure houses the measurement devices, power supplies, and data management hardware
- Netronix Thiamis ICU-820 combines control, datalogging, GPS, and GSM cellular modem communications. Sends data from each monitoring kit to a secure data center
- Includes secure access to Environet, for viewing data and creating reports using your PC or mobile device and a web browser.
- Optional weather station measures wind speed and direction, air temperature, air pressure, and humidity



Need your system to measure VOCs? Monitor sound levels?

Call us for help building the exact perimeter monitoring kit to fit your application needs.



Heat Stress Monitors

QUESTemp Portable Heat Stress Monitors



Intrinsically safe QT-36 kit ships with sensor bar mounted with wet bulb, dry bulb, and black globe thermometer, 12" probe, spare wicks, water bottle, 9V battery, serial cable with USB adapter, QuestSuite II software CD, calibration certificate, carrying case, and user manual.

QUESTemp 36

D	W	M
\$65.00 Daily	\$175.00 Weekly	Call Us!



QT-46 ships with sensor bar with black globe thermometer, dry bulb thermometer, and RH sensor; verification module, 9V battery, serial cable with USB adapter, CD driver, instructions, QuestSuite II software, calibration certificate, user manual, and carrying case.

QUESTemp 46

D	W	M
\$65.00 Daily	\$175.00 Weekly	Call Us!

Air Probe-120

D	W	M
\$20.00 Daily	\$70.00 Weekly	Call Us!

Air Probe-120 Add on (use with QT-46 only) for true wet-bulb calculations.

NOT
intrinsically
safe.



QUESTemp II Personal Heat Stress Monitor

Pocket-sized unit measures and logs core body temperature. Audible alarms indicate elevated temperatures to minimize worker heat stress risk.

QUESTemp II (Single)

W	M
\$150.00 Weekly	Call Us!

QT-II ships with monitor, cable for ear sensor, thermoplastic earmold with speaker assembly, 10 replacement expandable foam ear plugs, digital oral thermometer, 10 oral thermometer disposable sheaths, serial cable with USB adapter, QuestSuite Pro II software CD, storage case, and user manual.

QUESTemp II (5-Pack)

D	W	M
\$175.00 Daily	\$750.00 Weekly	Call Us!

5-Pack kit includes five QT-II monitors with cables, earmold speaker assemblies, 50 expandable foam ear plugs, plus one digital oral thermometer, 10 oral thermometer disposable sheaths, serial cable with USB adapter, QuestSuite Pro II software CD, storage case, and user manual.

Data Management Software Included!

All 3M Quest rentals come with QuestSuite Pro II and 3M Detection Management Software free. Download today at www.RaecoRents.com

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V04.2015

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Ventilation Test Instruments



VelociCalc® 9555 Multi-Function Ventilation Meter

Includes static pressure tip, rubber tubing, USB cable, LogDat and TrakPro software, user manual, carrying case, instrument and probe calibration certificates, power supply, and four AA Alkaline batteries. **Choose probes from the list below.**

VelociCalc 9555-P

D	W	M
\$30.00 Daily	\$80.00 Weekly	Call Us!

9565 adds ability to measure dP, VOCs, plus temperature (with Type K thermocouple probes).



VelociCalc® 9565 Multi-Function Ventilation Meter

Includes dP sensor and static pressure tip, rubber tubing, USB cable, LogDat and TrakPro software, user manual, carrying case, instrument and probe calibration certificates, power supply, and four AA Alkaline batteries. **Choose probes below.**

VelociCalc 9565-P

D	W	M
\$30.00 Daily	\$80.00 Weekly	Call Us!

Probes for Ventilation Testing (L to R)

- 995 rotating vane probe
- 964 air velocity probe
- 982 indoor air quality probe
- 985 volatile organic compounds probe (9565 only)
- 634634004 Pitot probe (Free: just ask for it!)



Add Probes to Extend VelociCalc Applications

	D	W	M
964 Air Velocity Probe (Velocity/Temperature/Humidity)	\$20.00	\$70.00	Call
982 IAQ Probe (Temperature/Humidity/CO/CO2)	30.00	100.00	Call
985 VOC Probe (Temperature/VOC ppm)	55.00	165.00	Call
995 Rotating Vane Probe (Velocity/Temperature)	10.00	40.00	Call
966 Articulating Probe	70.00	160.00	Call



TSI Alnor 6200D LoFlo Balometer

Includes 2'x2' air capture hood, frame, base, manometer, wheeled luggage-style carrying case, four C Alkaline batteries, NIST calibration certificate, and user manual.

LoFlo Balometer 6200D

D	W	M
\$65.00 Daily	\$160.00 Weekly	Call Us!



TSI Alnor EBT731 Balometer/Electronic Balancing Tool

Replacement for retired TSI AccuBalance Plus 8375

Ships with instrument, base assembly, 2' x2' hood, 18" Pitot probe, two static pressure probes, two 8' hoses, battery charger, four Alkaline batteries, LogDat1 software, interface cable, calibration certificate, and wheeled carrying case.

Alnor EBT731

D	W	M
\$70.00 Daily	\$200.00 Weekly	Call Us!

Need a temperature/humidity probe, or a 1'x4' or 2'x4' hood and frame kit? Each available for \$12.00/day, \$35.00/week.



DP-Calc™ 8710-XX1 Micromanometer Kit with Probes

Ships with 16-point velocity matrix, air flow probe, 18" Pitot probe, two static pressure probes, two Neoprene tubes, battery charger, four AA Alkaline batteries, neck strap, AC adapter, serial cable, telescoping handle, LOGDAT software, NIST calibration certificate, carrying case, and manual.

DP-Calc™ 8710-XX1

D	W	M
\$65.00 Daily	\$190.00 Weekly	Call Us!

Need a temperature/humidity probe? Rent it! \$12.00/day, \$35.00/week.



Indoor Air Quality Measurement



IAQ-Calc™ 7545 Indoor Air Quality Meter

Ships with instrument, four AA Alkaline batteries, PC cable, download software CD, probe stand, CO2 and CO calibration collars, AC adapter, carrying case, calibration certificate, and manual.

IAQ-Calc™ 7545

D	W	M
\$60.00 Daily	\$180.00 Weekly	Call Us!



Q-Trak™ 7565 Indoor Air Quality Monitor

Ships with 982 IAQ probe and stand, CO/CO2 calibration collar, Alkaline batteries, AC adapter, serial cable, DB9/DB25 adapter, TrakPro software, calibration certificate, carrying case, and user manual.

Q-Trak™ 7565

D	W	M
\$60.00 Daily	\$180.00 Weekly	Call Us!

Add Probes for Other Air Quality Measurements

	D	W	M
964 Air Velocity Probe (Velocity/Temperature/Humidity)	\$20.00	\$70.00	Call
995 Rotating Vane Probe (Velocity/Temperature)	10.00	40.00	Call
966 Articulating Probe	70.00	160.00	Call

What can you learn at RaecoRents.com?

- How to use TSI PortaCount Pro for fit testing
- How to use the Svantek SV-106 vibration testing system
- How to download data from 3M Quest noise dosimeters or BW GasAlert gas detectors
- Using an Ion Science PhoCheck Tiger PID with PC software

More tutorials and videos added every week!

Learn more at RaecoRents.com

Specs, manuals, quick-start guides, software, and free training videos available 24 x 7 x 365!



Portable Instruments

Industrial Hygiene

Portable Instruments

Safety

Fixed Instruments/Monitoring

Analytics

RAECO Rents



GilAir Plus 5-Liter Universal Air Sampling Pump

- Pressure and temperature calibrated, with datalogging feature
- Constant flow 25-5000 cc/min, constant pressure 1-5000 cc/min
- High-flow and low-flow constant pressure, constant flow — no adapters required
- Up to 40" H2O back pressure in high flow, up to 25" H2O in low flow
- Automatically performs restart to recover from temporary faults
- Dock provides charging plus communication to PC or calibrator
- Battery proven to last 12 hours on a single charge



Single kit includes one sampling pump, single station communication/charging dock, USB cable, AC power supply, filter cassette holder, charcoal tube holder, pump management software, hex wrench, user manual, certificate of performance, and carrying case.

GilAir Plus (Single)

W	M
\$100.00 Weekly	Call Us!

5-Pack kit includes five each: sampling pump, filter cassette holder, charcoal tube holder, certificate of performance plus one each: five-station communication/charging dock, AC power supply, hex wrench, pump management software, user manual, and carrying case.

GilAir Plus (5-Pack)

D	W	M
\$150.00 Daily	\$450.00 Weekly	Call Us!

Gilian 5000 5-Liter Live Flow Air Sampling Pump



Need high back pressure?
Gilian 5000 is the pump for you!

Comes with 1000-5000 cc/min pump, low flow constant pressure adapter, NiMH battery, charger, filter cassette holder, US 120/240V power cord, 36" tubing, user manual, and carrying case.

Gilian 5000

W	M
\$75.00 Weekly	Call Us!



GilAir-5 5-Liter Constant Flow Sampling Pump

Kit includes one 750-5000 cc/min pump, low flow (20-500 cc/min) module, 120 VAC charger, filter cassette holding kit, air boss kit, 35" tubing, screwdriver, tool kit, carrying case, and user manual.

GilAir-5 (Single)

W	M
\$75.00 Weekly	Call Us!

5-pack pump kit includes five pumps and low flow modules, five-station charger, filter cassette holding kit, air boss kit, 35" tubing, screwdriver, tool kit, carrying case, and user manual.

GilAir-5 (5-Pack)

D	W	M
\$100.00 Daily	\$350.00 Weekly	Call Us!

Most units also available for sale. Visit bit.ly/RentsGU or call 866-RENT-EHS for prices on gently used instruments.

Don't Forget Your Pump Accessories!

Gilian Dorr-Oliver Cyclone

D	W	M
\$6.00 Daily	\$20.00 Weekly	Call Us!

Gilian Calibration Jar

D	W	M
\$2.00 Daily	\$3.00 Weekly	Call Us!

Free with a pump rental!

- 37mm Filter Cassette Kit: 37mm filter cassette, sampling tubing, U-tube, Luer adapter, lapel clip.
- Adjustable Sorbent Tube Kit: Tube holder, 6mm x 70mm tube cover, sample tubing, and lapel clip

\$5 flat fee each for any rental duration!
For use with all RAECO rental pumps.

Air Sampling Pumps



Bio-Pump® Plus Particulate Sampling Pump

Kit includes Bio-Pump Plus, low-flow resistance filter, Air-O-Cell flow meter, Air-O-Cell CSI flow meter, cassette manuals, instructional DVD, A/C adapter, user manual, and carrying case.

Bio-Pump® Plus

W	M
\$75.00 Weekly	Call Us!

Don't forget to buy a 10-pack of sampling media		Price
	Air-O-Cell Cassettes For mold spores, pollen, insect parts, skin cells, fibers and inorganic particulate.	\$45.00
	Air-O-Cell CSI Cassettes For viable and non-viable particulate, like mold spores, pollen, insect parts, skin cell fragments, fibers (asbestos, fiberglass, cellulose, etc.) and inorganic particles.	95.00
	Via-Cell Cassettes For viable and non-viable bioaerosols maintains viability of the mold spores and prevents growth during transport to the lab.	125.00

Air Flow Calibrators and Accessories



Challenger Precision Air Flow Calibrator

1 to 30 LPM

Challenger Kit

Kits include unit, venturi for high and low flow calibration, four AA batteries, 18" tubing, CD software, NIST certificate of calibration and traceability, and user manual.

W	M
\$80.00 Weekly	Call Us!



4146 Primary Flow Calibrator Kit

Compatible with all RAECO Rents air sampling pumps.

4146 Calibrator

Kits include flow calibrator unit, battery pack, zero filter, connector kit, dampening chamber module, carrying case, six AA Alkaline batteries, tubing, battery pack lugs, carrying case, user guide, and NIST calibration certificate.

W	M
\$80.00 Weekly	Call Us!



4046 Primary Flow Calibrator Kit

For calibrating Zefon BioPump Plus.

4046 Calibrator

Kits include calibrator, soft sided carrying case, tubing, adapter, manual, inlet filter, calibration certificate, 6-AA batteries.

W	M
\$80.00 Weekly	Call Us!



Sensidyne Quad Tube Holder Kit

For use with Gilian 5000 and GilAir Plus pump kits.

Quad Tube Holder Kit

Kit includes tube holder housings, housing ends, collar clips, hose barbs, couplings, wrench, tubing, tube holder o-ring kit, in a clear storage box. Tube holders come in a variety of sizes, from Sensidyne standard to sizes for Kitagawa and Draeger tubes.

W	M
\$50.00 Weekly	Call Us!

Portable Gas Detectors

SENSITIVE
Industrial Health & Safety Instrumentation

AP-20S Gas Detection Pump Kit



Kit includes Pump, three spare tube holders, lubricant, carrying bag, and manual. Detector tubes sold separately. See our website for a complete list.

AP-20S Pump Kit

W	M
\$30.00	Call Us!
Weekly	

Most Popular Detector Tubes

(\$69.00 per Box of 10)

Don't see the tubes you need? Call us!

Gas/Vapor	Range	Cat #
Ammonia	0.5-30 %v	105SH
	0.2-20 ppm	105SD
	5-260 ppm	105SC
	50-900 ppm	105SB
Carbon Monoxide	0.1-20 %v	106UH
	1-50 ppm	106SC
	10-250 ppm	106S
Hydrogen Sulfide	1-60 ppm	120SD
	0.75-300 ppm	120SB
Nitrogen Dioxide	0.5-30 ppm	117SB

GasAlert Extreme Single Gas Monitors

Specify O₂, CO, or HCN

Kit includes detector, concussion-proof housing, selected sensor (0-1000 ppm CO, 0-30% O₂, or 0-30 ppm HCN), field replaceable battery, stainless steel alligator clip, calibration/test cap and hose, user manual, and quick reference card.

GasAlert Extreme

W	M
\$75.00	Call Us!
Weekly	



GasAlert Quattro Personal Four-Gas Detector

Replaces GasAlert Micro and MiniMax X4

Includes detector, sensors, rechargeable battery pack, wall charger, calibration cap and tubing, reversible screwdriver, concussion-proof housing, stainless steel alligator clip, user manual, materials booklet, and technical reference guide.

GasAlert Quattro

D	W	M
\$45.00	\$100.00	Call Us!
Daily	Weekly	

Connectivity Kit

D	W	M
\$6.00	\$20.00	Call Us!
Daily	Weekly	

BW Technologies Connectivity Kit and Software

Infrared DataLink with BW Fleet Manager Software
Compatible with GasAlert Extreme and Quattro.


MSA
The Safety Company

Altair 5 Datalogging Multigas Detector

Altair 5 kit includes detector, sensors for LEL, CO, O₂, SO₂, and H₂S, integral pump, 10' sampling line, 1' probe, power supply/charger, calibration cap and tubing, user manual CD, quick-start card, and carrying case.

MSA Altair 5 10094902

D	W	M
Call Us!	Call Us!	Call Us!



Solaris Four-Gas Combustible Gas Detector

Kit includes detector with sensors for O₂, CO, H₂S, and %LEL, battery charger, charging station, calibration cap, tubing, two male fittings, infrared reader, pump probe, Solaris and card reader software, quick reference card, and manual on CD.

MSA Solaris

D	W	M
Call Us!	Call Us!	Call Us!

All portable and personal gas detectors are calibrated before shipping to you. Ready to use right out of the box. Renting longer than a week? Ask us about cal gas for bump testing. (Hazmat shipping charges will apply.)



GasAlert Micro5 Multigas Monitors

Sensor	Range	Resolution	Model
CO	0-500 ppm	1.0 ppm	5, 5IR, 5PID
O ₂	0-30.0%	0.1%	5, 5IR, 5PID
H ₂ S	0-500 ppm	1.0 ppm	5, 5IR, 5PID
%LEL	0-100% LEL 0-5.0% v/v	1% 0.1%	5, 5IR, 5PID
CO ₂	0-50,000 ppm 0-5.0% v/v	50 ppm 0.01%	5IR
NH ₃	0-100 ppm	1.0 ppm	5
SO ₂	0-150 ppm	1.0 ppm	5

Micro5 kit includes datalogging gas detector, sensors for CO, O₂, H₂S and %LEL, rechargeable battery pack, cradle and charger, Alkaline battery pack, motorized sampling pump, Fleet Manager II software, sample probe, diffusion cover, and 10-foot sample line, user manual, and carrying case.

GasAlert Micro5

D	W	M
\$50.00	\$150.00	Call Us!
Daily	Weekly	

GasAlert Micro5 w/SO₂

D	W	M
\$65.00	\$175.00	Call Us!
Daily	Weekly	Monthly

GasAlert Micro5 w/NH₃

D	W	M
\$85.00	\$190.00	Call Us!
Daily	Weekly	Monthly

Micro5 IR kit includes datalogging detector, sensors for CO, O₂, H₂S, %LEL, and CO₂, rechargeable battery pack, cradle and charger, Alkaline battery pack, pump module, diffusion cover, calibration cap and tubing, probe with tubing, screwdriver, Fleet Manager II software, user guides, manual, and carrying case.

GasAlert Micro5 IR

D	W	M
\$65.00	\$185.00	Call Us!
Daily	Weekly	

GasAlert Micro5 PID Personal VOC Monitor

Sensor	Range	Resolution	Model
CO	0-500 ppm	1.0 ppm	5, 5IR, 5PID
O ₂	0-30.0%	0.1%	5, 5IR, 5PID
H ₂ S	0-500 ppm	1.0 ppm	5, 5IR, 5PID
%LEL	0-100% LEL 0-5.0% v/v	1% 0.1%	5, 5IR, 5PID
VOCs	0-1000 ppm	1 ppm	5PID

Includes datalogging gas detector, sensors for CO, O₂, H₂S, %LEL, and VOCs, lithium polymer battery pack and cradle charger, motorized sampling pump and diffusion cover, Fleet Manager II software, sample probe and 10-foot sample line, user manual, and carrying case.

GasAlert Micro5 PID

D	W	M
\$60.00	\$165.00	Call Us!
Daily	Weekly	



VOC Detection



PhoCheck Tiger Photoionization Detector (PID) for VOCs

- Wide dynamic range ppb to 20,000 ppm for specific volatiles
- Accuracy to $\pm 5\%$ display reading ± 1 digit
- LED, vibratory, and audible alarms — pre-programmed time-weighted average (TWA) and short-term exposure limits (STEL) for 450 different gases
- Logs >120,000 data points including date and time stamp, 33 hours at one log per minute
- Intrinsically safe ATEX, IECEx, and cUL approvals
- Detects Benzene without the need for specific tubes in areas of Benzene gas only; Requires selective pre-filter tubes for detecting Benzene in other compounds
- Battery life up to 30 hours, and can be changed in hazardous areas



PhoCheck Tiger (10.6eV)

D	W	M
\$95.00 Daily	\$235.00 Weekly	Call Us!

PhoCheck Tiger (11.7eV)

D	W	M
\$110.00 Daily	\$275.00 Weekly	Call Us!

Includes Detector with your choice of 10.6eV or 11.7eV Krypton PID lamp, rechargeable Li-Ion battery, battery charger and power adapter, rubber boot, carbon zero filter assembly and filter adapter, PTFE filter disc, removal tool miniPID stack, 60mm probe tube, PID lamp cleaning kit, lanyard, USB memory stick with software, USB cable, spare AA battery pack, user manual, and carrying case.



PhoCheck+ 3000 Photoionization Detector (PID) for VOCs

Range: 0.1 ppm to 10,000 ppm

Includes 10.6 eV Krypton lamp, removal tools, and cleaning kit, 100mm probe, 50micron PTFE filter, four AAA alkaline batteries, charger, intrinsically safe protective cover, carbon canister for calibration, two Neoprene sleeves, Ion PC software, calibration kit sample, calibration adapter, calibration certificate, manual, and carrying case.

PhoCheck+ 3000

D	W	M
\$90.00 Daily	\$235.00 Weekly	Call Us!



MiniRAE 3000 Photoionization Detector

Range: 0.1 to 15,000 ppm

Kit includes PGM-7320 monitor, wireless communication module built in, datalogging with ProRAE Studio Package for Windows, charging/download adapter, RAE UV lamp, Flex-I-Probe™, external filter, rubber boot, battery adapter, lamp-cleaning kit, tool kit, operation CD-ROM and maintenance manual, and carrying case.

MiniRAE 3000

D	W	M
\$95.00 Daily	\$235.00 Weekly	Call Us!



MicroFID Flame Ionization Detector for EPA Method 21

Range: 0.1 to 50,000 ppm
VOCs and Alkanes

Ships with 8" Teflon sample probe, telescoping 6' extension probe, fuel refill adapter, replacement Fluoropore membrane filters, multi-tool, carrying strap, printer cable kit, 15-hour rechargeable battery pack and 115 VAC charger, carrying case, and user manual. Call for calibration gas.

Photovac MicroFID

D	W	M
\$100.00 Daily	\$300.00 Weekly	Call Us!

Refrigerant, Gas Leak and Contaminant Detectors



Formaldemeter htV Airborne Formaldehyde Meter

Kit includes meter, 10 phenol filters, thermometer, pen, 9V Alkaline battery, calibration standard, instruction manual, and carrying case.

Formaldemeter htV

D	W	M
\$60.00 Daily	\$160.00 Weekly	Call Us!

htV-m datalogging and event logging model also includes software and USB cable.

Formaldemeter htV-m

D	W	M
\$175.00 Daily	\$375.00 Weekly	Call Us!



GasCheck 3000 Gas Leak Detector

This model is NOT intrinsically safe.

Includes 10" probe, spare battery clip, nozzle replacement tool, four AA Alkaline batteries, user manual, calibration certificate, and carrying case.

GasCheck 3000

D	W	M
\$95.00 Daily	\$285.00 Weekly	Call Us!



MVI Real-Time Mercury Vapor Monitor

Dual beam UV absorption sensor with ranges 0.1–200 and 1.0–1999 $\mu\text{g}/\text{m}^3$

Kit Includes detector, PTFE probe with moisture trap, charger, datalogging kit, zero (carbon) filter, spare water trap filter, user manual, and carrying case.

MVI

D	W	M
\$140.00 Daily	\$400.00 Weekly	Call Us!



IN USA Portable Ozone Spot Checker

Range: 0–1999 PPBv
Analog Output: 0 to 1.999 VDC

Kit Includes ozone detector, built-in micro pump, power cord, AA batteries, filters, USB cable, NIST certificate of traceability, user manual, and carrying case.

IN-AET-055-PA

D	W	M
\$70.00 Daily	\$180.00 Weekly	Call Us!

Ready when you are!

Do you have the time, expertise, or staff availability it takes to properly maintain your portable industrial hygiene and safety monitoring instruments? Are you sure they'll work when you need them to, or have all the accessories you need to perform your next test?

Before shipping instrumentation to you, a RAECO Rents technician calibrates the unit and runs diagnostics to make sure your rental kit is in proper working order.



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V04.2015

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rents@raecorents.com

Rental Operations Office
135 Bernice Drive
Bensenville, IL 60106-3366

Rentals: 866-RENT-EHS
Fax: 815-464-8720



Combustion Efficiency Analyzers

Which Combustion Analyzer Do You Need?

For	O ₂	CO	NO	NO ₂	SO ₂	T/C	Draft & Flow	Hydro-Carbons	CO low NO low
330-2 LL	✓	✓	✓			✓	✓		
335	✓	✓	✓			✓			
340	✓	✓	✓	✓		✓	✓		
350	✓	✓	✓	✓	✓	✓	✓	✓	✓



330-2 LL Industrial Combustion Analyzer

Comes with sensors for O₂, CO, NO, calculates NO_x, 7' hose, 12" probe, Li-Ion battery, charger with cord, infrared printer with paper, carrying strap, standard case, USB cable, software, calibration certificate, and user manual.

330-2 LL Kit #2

D	W	M
\$130.00 Daily	\$350.00 Weekly	Call Us!



Testo 335 Portable Flue Gas Analyzer

Includes sensors for O₂, CO, and NO, calculates NO_x, Type K thermocouple, 12" probe, 7-foot Teflon®-lined hose, infrared printer with paper, power adapter and charger, two Li-Ion batteries, filters, EasyEmission software, USB cable, case, calibration certificate, and manual.

335 NO_x Kit

D	W	M
\$125.00 Daily	\$350.00 Weekly	Call Us!

Learn more at RaecoRents.com

Specs, manuals, quick-start guides, software, and free training videos available all day, every day!



Testo 340 Portable Combustion Tuning Analyzer

Comes with analyzer, sensors for O₂, CO, NO, NO₂, draft and flow, thermocouple probe, AC power adapter with Li-Ion battery, filters, high temp engine probe, user manual, and transport case.

340 Engine Kit

D	W	M
\$145.00 Daily	\$450.00 Weekly	Call Us!

Calculates CO₂, efficiency, excess air, and mass emissions (with a Pitot tube).



Testo 350 Advanced Combustion Efficiency Analyzer

Includes sensors for CO, O₂, NO, NO₂, SO₂, (CO low, NO low, and CxHy available on request); control unit, particulate filters, printer paper, carrying strap, 12" engine probe with 7' hose and 12" thermocouple probe with 7' or 16' cable, heat shield, RS232 cable, software, 16' remote control cable, calibration certificate, transport case, and user manual.

350 #3 Engine Kit

D	W	M
\$210.00 Daily	\$525.00 Weekly	Call Us!

350 #3 Engine Kit + CxHy

D	W	M
\$250.00 Daily	\$650.00 Weekly	Call Us!

EasyEmissions Software

- Realtime analyzer control through your PC, showing tabular, graphical, and picture box results
- Calculates min/max, and mean values
- Programmable logging intervals
- Custom formulas for report calculations
- Data transfer to Excel® or Adobe® PDF
- Free with all compatible Testo rentals



Visual Inspection and Non-Destructive Testing



Mark 10 Digital Force Gauge

Kit includes instrument, chisel, cone, V-groove, screw and hook, flat, extension rod, universal voltage AC adapter, battery, single handle, two-handle base, three push attachments, USB cable, resource CD with USB driver, MESURgauge demo software and PDF user manual, printed quick-start guide, NIST traceable calibration certificate, and carrying case.

D	W	M
\$55.00 Daily	\$135.00 Weekly	Call Us!



SV106 Human Vibration Meter/Analyzer

Kit includes SV106 meter, seat accelerometer, hand-arm adapter, 4 AA Alkaline batteries and spares, USB cable, software CD, carrying case, NIST calibration certificate, and user manual.

D	W	M
\$130.00 Daily	\$390.00 Weekly	Call Us!

Vibration Measuring Accessories

	D	W	M
SV105 Hand Arm Vibration Measurement	\$30.00	\$90.00	Call
SV38V Whole Body Vibration Pad	35.00	105.00	Call
SV207A-SO Building Vibration Measurement	110.00	330.00	Call



880-3 Thermal Imager/Digital Camera

Comes with 1 GB SD card, black protective lens, lens cap, lens cleaning cloth, USB cable, rechargeable battery, Allen wrench, wrist strap, tripod mounting plate, software, power supply/charger, user manual, and carrying case.

D	W	M
\$130.00 Daily	\$350.00 Weekly	Call Us!



318-V Video PRO Confined Space Digital Inspection Tool

Kit includes digital inspection scope, mirror tip, magnetic tip, carrying case, four AA batteries and manual.

318-V 42" Scope

W	M
\$40.00 Weekly	Call Us!



Sound Level Meters and Noise Dosimeters

SoundPro DL Datalogging Sound Level Meters



Includes meter, QC-10 calibrator, 1/3 octave band analyzer, wrist strap, windscreen, USB cable, 128MB SD card, microphone, QuestSuite Pro II software CD, 9V battery, four AA Alkaline batteries, AC power adapter, user manual, calibrator manual, calibration certificate, and carrying case.

(Type 1) SP-DL-1-1/3-AC3

D	W	M
\$80.00 Daily	\$240.00 Weekly	Call Us!

(Type 2) SP-DL-2-1/3-10

D	W	M
\$80.00 Daily	\$240.00 Weekly	Call Us!

Optional Mic for 3M/Quest Sound Pro Type 1 Sound Level Meter QE4130 - Free field, Class/Type 1, 0.5" diameter (0.52"), condenser (200V must be set to "On"). Use for general, higher level, free-field measurements.

Edge Intrinsically Safe Personal Noise Dosimeters



Now with three virtual dosimeters!

Single rental includes one dosimeter, one-unit EdgeDock docking station with power supply, USB cable, windscreen, 1/4" microphone, Allen wrench, spare wind screen, user manual, software CD, QC-10 calibrator and adapter, calibration certificate, and carrying case.

eg5-D Single Dosimeter

D	W	M
\$70.00 Daily	\$160.00 Weekly	Call Us!

Seg5-D-10 Five-Pack

D	W	M
\$240.00 Daily	\$670.00 Weekly	Call Us!

Five-pack includes five each: dosimeters, wind-screen assemblies, 1/4" microphones, calibration certificates, plus one each: manual, software CD, QC-10 calibrator and adapter, five-unit EdgeDock docking station with power supply, Allen wrench, spare wind screen, USB cable, and carrying case.

Outdoor Enclosure Kit for SoundPro DL



Run outdoor sound level tests in any weather!

Includes weather-resistant carrying case, microphone mast, windscreen, cable, rechargeable battery packs, AC charger for batteries, adapters, and user manual.

SP-OMS Enclosure Kit

D	W	M
\$75.00 Daily	\$185.00 Weekly	Call Us!

Can be configured for remote monitoring using Netronix Thiamis ICU820 to send alarms.

Need multiple kits? Call 866-736-8347 for quantity price discounts.



NoisePro DLX Type 2 Noise Dosimeters



NP-DLX kit includes dosimeter, mic and cord, windscreen, calibrator and adapter, clothing clip, QC-10 calibrator, IR/RS-232 PC interface cable, QuestSuite® II software, manual, training/demo CD, USB cable, calibration certificate, and carrying case.

NP-DLX-CBL Dosimeter

D	W	M
\$45.00 Daily	\$135.00 Weekly	Call Us!

SNP-DLX10QSP11 Five-Pack

D	W	M
\$175.00 Daily	\$525.00 Weekly	Call Us!

Five-pack includes five each: NoisePro DLX dosimeters, microphones with cords, windscreens, clothing clips, plus one each: calibrator adapter, PC interface cable, QC-10 calibrator, watertight case, QuestSuite® II software CD, USB cable, manual, and calibration certificate.

2200 Type 2 Integrating Sound Level Meter



Kit includes meter, windscreen, adapter, calibrator, 50' remote cable with microphone, manual, calibration certificate, and storage case.

This is NOT a datalogging unit.

Quest 2200R-10

D	W	M
\$60.00 Daily	\$125.00 Weekly	Call Us!

2900-UL-30010 Integrating Sound Level Meter



Includes meter, mic, OB-300 octave band filter, windscreen, wrist strap, calibrator and adapter, serial interface cable, QuestSuite software, calibration certificate, and carrying case.

Quest 2900-UL-30010

D	W	M
\$50.00 Daily	\$125.00 Weekly	Call Us!

QC-10 Sound Calibrator (114 dB @ 1000 Hz)



Free with meter rentals!

Kit includes calibrator, 9V transistor battery, calibration certificate, and user manual. Mic adapter not included.

D	W	M
\$20.00 Daily	\$50.00 Weekly	Call Us!

All rentals for 3M Quest products include your choice of QUESTSUITE PRO II or 3M Detection Management (DMS) 30-day trial software!

Download the latest versions today at RaecoRents.com



Radiation Exposure Testing



ELT-400 Magnetic Field Exposure Level Tester

Range: 1 Hz to 400 KHz

Kit includes instrument, probe, probe extension cable, serial data cable, analog interface cable for use with oscilloscope or spectrum analyzer, power adapter, calibration certificate, user manual, and carrying case.

Narda ELT-400

D	W	M
\$145.00 Daily	\$475.00 Weekly	Call Us!

SE Inspector Digital Radiation Alert Detector



Measurement Range: 0.001 (1 µR)–100 mR/hr, 0–350000 CPM, 0.01–1000 µSv/hr, 0–5000 CPS

SEInspectorEXP: Choose built-in detector or external pancake probe.

Includes instrument, 9V battery, user manual, and soft carrying case.

SE Inspector

W	M
\$300.00 Weekly	Call Us!

SE Inspector Exp

W	M
\$300.00 Weekly	Call Us!

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www.RAECORents.com
rents@raecorents.com

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Rentals: 866-RENT-EHS
Fax: 815-464-8720

Respirator Fit Testers



PortaCount® Pro and Pro+ Quantitative Respirator Fit Testers

Learn how to use
PortaCount Pro systems.
Free video training at
RaecoRents.com/train/



Which model do you need?

PortaCount Pro 8030

For disposable filtering facepieces Series 100, 99, P3, and HEPA masks, half and full-face masks, gas masks, PAPR, and SCBA mask fit testing.

D	W	M
\$150.00 Daily	\$450.00 Weekly	Call Us!

PortaCount Pro+ 8038

Fit test ANY tight-fitting respirator, plus N95, P2, and P1 disposables; OSHA-compliant for all respirators. Combines functions of TSI 8020 and 8095.

D	W	M
\$200.00 Daily	\$600.00 Weekly	Call Us!

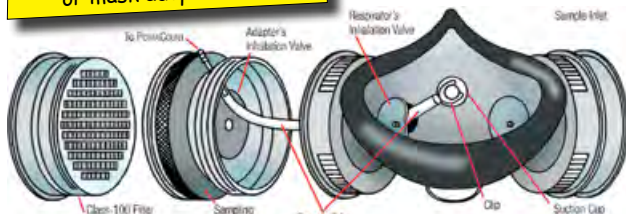
TSI 8030 kit ships with AC adapter, alcohol cartridge, alcohol fill capsule, storage cap, two zero check filters, alcohol supplies, 3/16" and 1/4" hose adapters, two spare alcohol wicks, carrying case, FitPro software and tutorial CDs, 1GB flash memory drive, USB cable, user manual, and calibration certificate.

TSI 8038 kit ships with AC adapter, alcohol cartridge, alcohol fill capsule, storage cap, two zero check filters, alcohol supplies, 3/16" and 1/4" hose adapters, two spare alcohol wicks, 25 sampling probes, probe insertion tool, neck strap, carrying case, FitPro software and tutorial CDs, 1GB flash memory drive, USB cable, user manual, and calibration certificate.

Testing in clean environments?

Rent a TSI 8026 particle generator, \$50.00/day, \$160.00/week.

Don't forget your N95 probes or mask adapter kits.



Don't forget your respirator adapter kit!

Mask adapters are required for fit testing, but are not included with any PortaCount rental units. If you don't have an adapter for your model respirator mask, popular models are available free with a test kit rental (or for a small fee when rented separately).

Adapter kits generally include the adapter that connects your mask to the fit tester, P100 HEPA filters, and disposable components. If you need additional test supplies, buy the refill kit that matches your adapter kit. For-sale kits have enough supplies for 200 tests. Rental kits include enough supplies for 25 tests.

Mask Adapters and Fit Testing Supplies

Popular mask adapter kits
available free with rental.



Adapter to Fit...	Refill Kit	Catalog Number	Price
3M masks, including those with detachable filters	800553	8025-16	\$310.00
Avon masks with drink tube (Also fits US M50)	801633	8025-AVON	155.00
Dräger Combitor Nova RD91, Cirrus RD91		8025-24	220.00
Dräger masks, 40mm filter threads or snap-in connectors	800553	8025-26	495.00
Interspiro Spiromatic and Spirolite SCBA facepiece		8025-21	665.00
Interspiro Spiromatic S and S4 SCBA facepiece		8025-21S	730.00
MSA Advantage 1000, Millennium; Also 3M FR-M40, US Mil MCU-2/P, M40		8025-29	135.00
MSA Millennium, US Mil M40/MCU-2P (Adapter Only)		1081379	55.00
MSA Advantage respirators with bayonet filters	800785	8025-30	165.00
MSA Comfo, Advantage half or full-face masks	800785	8025-14	360.00
MSA Ultra Elite, Advantage 3100 (40mm screw-in)	800785	8025-22	320.00
MSA Ultra Elite, Quarter-Turn MMR (Not Firehawk)		8025-22Q	360.00
MSA UltraView (incl. SCBA with screw-in connection, Ultra Twin, Phalanx)		8025-15	220.00
MSA UltraView with Quarter-Turn MMR		8025-15Q	260.00
MSA Ultra Elite Firehawk, Blackhawk, Airhawk Push to Connect		8025-31	285.00
North masks (5400, 5500, 7600-7800, 80004, 800045, 85400A, 85500A, 800 series)	800553	8025-17	285.00
Protector/Sabre Phantom PAPR, 48mm thread	800553	8025-28	215.00
Scott full-face AV-2000, AV-3000, Scott-O-Vista, 65		8025-20	205.00
Survivair air purifying masks (Includes 2000, Blue 1, Low Mtce, 4000, 20/20)	800553	8025-12	225.00
Survivair positive-pressure SCBA masks, Panther-style MMR (Classic, 20/20, OPTI-Fit)	800553	8025-13	435.00
US Safety, all masks	800553	8025-25	200.00
Wilson F-series facepieces, 1" screw-on filters	800553	8025-23	385.00
Wilson T-series bayonet-type masks, GT-series small diam screw-on connections	800553	8025-19	270.00
Generic 40mm facepieces	800553	8025-CEN	220.00
Gas masks with standard US military drink tubes	801633	8025-USMIL	200.00
Accessories and Consumables			
Filtering Facepieces Probe Kit (500 probes and tool set)		8025-N95	190.00
Refill Kit for 8025-N95 (500 probes and push-nuts)		8025-N95R	130.00
Refill Kit #1 (50' tubing, 200 clips, 200 suction cups)	800553		120.00
Refill Kit #2 (50' tubing, 200 clips, 200 suction cups)	800785		120.00
Refill Kit #3 (50' tubing, 200 clips, 200 suction cups)	801633		135.00
Particle generator for PortaCount Pro and Pro+	8026		840.00
Salt tablets for particle generator (Bag of 100)	803011		40.00
Reagent-grade alcohol (Case of 16 30ml bottles)	8016		115.00
Zero check HEPA filter for PortaCount Pro and Pro+	803X-ZFLTR		35.00
10-Pack alcohol wicks, screens (For TSI 8030 and 8038)	8033		125.00
Sample hose kit, 3x5' twin tubes, 10 adapters ea: 3/16", 1/4"	8017		115.00
Twin tube, one 5' blue/clear tube	800197		25.00
18" Pendant twin tubes for N95 testing, pack of five	801501		45.00

TSI PortaCount® Pro and Pro+



New Best-in-Class Quantitative Respirator Fit Testing Systems

- Measures fit factors >10,000
- OSHA-compliant for tight-fitting respirators (Pro) or for both tight-fitting respirators and disposable masks (Pro+)
- Stand-alone operation with digital color touchscreen
- Connect to a PC to add functionality — automate testing, generate reports, and print ID cards

Units available for sale or short-term rental.

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One Gas Detection Transmitter Fits All!

- Detects toxic gases, combustibles, and oxygen
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- Explosion proof and intrinsically safe operation with UL, FM, CSA, and ATEX approvals — Now available for SIL2
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- 4–20 mA with HART® output standard
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